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Grass Creek/Cody Resource Areas

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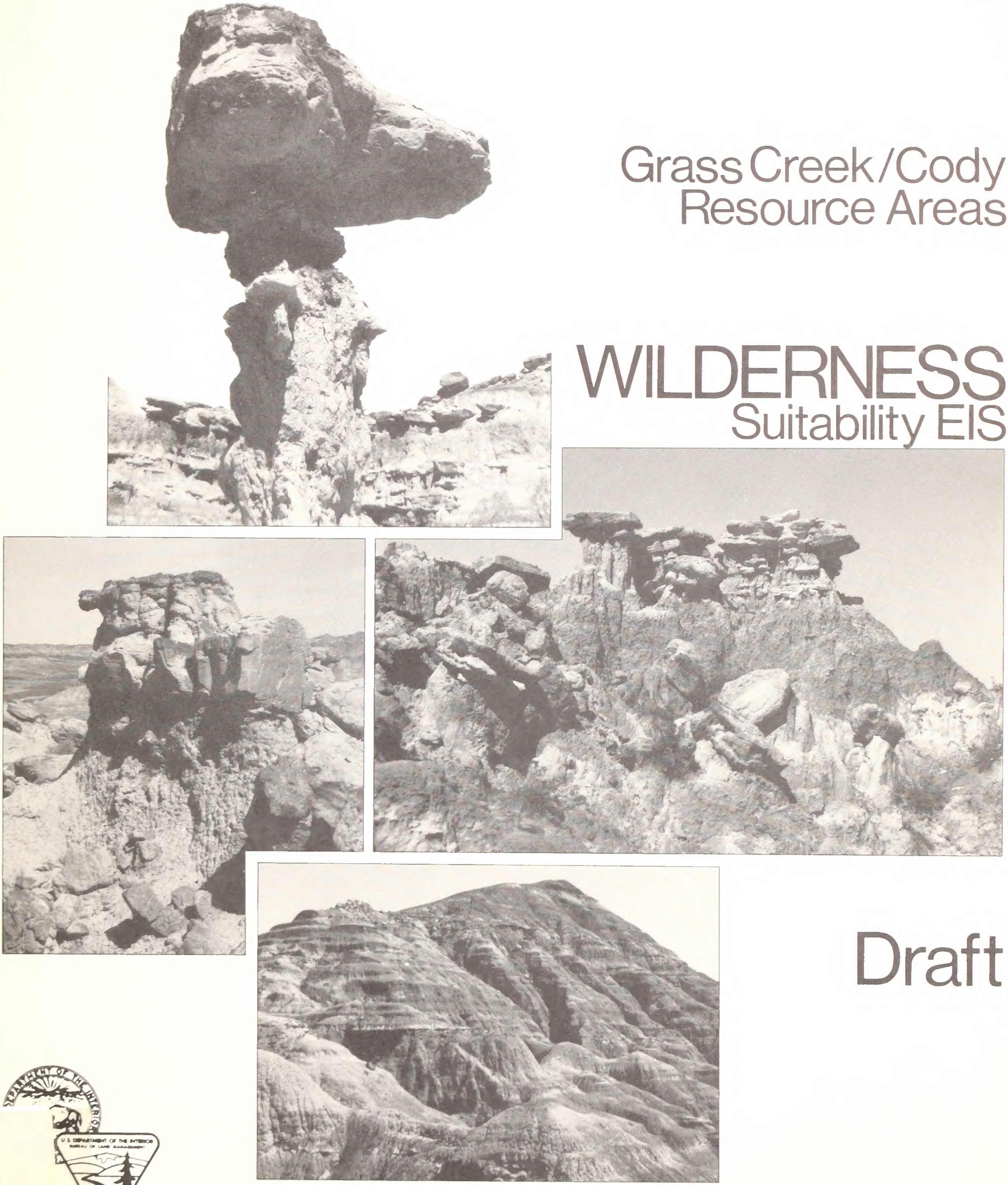

Draft

U. S. Department of the Interior · Bureau of Land Management · Worland District, Wyoming

NOTICE OF OPPORTUNITY TO COMMENT

The Bureau of Land Management is seeking public comment on the adequacy, completeness, and accuracy of this draft EIS. The comment period will run for at least 90 days after notice of availability of this document is published in the *Federal Register*. Publication of the notice of availability is expected to occur about August 1, 1984.

Written comments may be submitted at any time during the comment period to the Worland District Office, Bureau of Land Management, P.O. Box 119, Worland, Wyoming 82401. Formal hearings to receive comment have been scheduled as follows:

Worland, Wyoming: September 18, 1984; Worland High School Little Theater, at 7:30 p.m.
Cody, Wyoming: September 19, 1984; Cody Convention Center, at 7:30 p.m.

Please retain this draft. If extensive changes are not necessary in the final EIS, an abbreviated copy of the final document will be printed.

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WILDERNESS SUITABILITY ENVIRONMENTAL IMPACT STATEMENT: GRASS CREEK AND CODY RESOURCE AREAS

Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Worland District
June 1984

This environmental impact statement considers the suitability of four wilderness study areas for inclusion in the National Wilderness Preservation System. These areas, containing 74,840 acres of public land, are located in the western Bighorn Basin in north-central Wyoming. A No Wilderness Alternative and two or three alternatives that would recommend wilderness designation for some or all of the study area lands are evaluated in the EIS. The proposed action for each of the four study areas is the No Wilderness Alternative.

For further information, contact Chester E. Conard, District Manager, Worland District Office, Bureau of Land Management, P.O. Box 119, Worland, Wyoming 82401.

Please submit comments to the above address by: **November 1, 1984**

Hillary A. Oden

WYOMING STATE DIRECTOR

TABLE OF CONTENTS

Page

SUMMARY 1

CHAPTER I - PURPOSE AND NEED 5

Wilderness Review Process 5
Major Issues and Concerns 6

CHAPTER II - ALTERNATIVES INCLUDING THE PROPOSED ACTION 9

Alternatives by Study Area 9
Bobcat Draw Badlands (WY-010-126) 11
Sheep Mountain (WY-010-130) 12
Red Butte (WY-010-131) 13
McCullough Peaks (WY-010-135) 14
Proposed Action Rationale 14
Alternatives Considered but Eliminated from Detailed Analysis 23
Manageability 24
Summary Impact Comparison of Alternatives 24

CHAPTER III - AFFECTED ENVIRONMENT 29

Regional Setting 29
Relationships to other Programs/Plans 30
Unaffected Aspects of the Environment 31
Area by Area Description of the Environment 32
Bobcat Draw Badlands (WY-101-126) 32
Sheep Mountain (WY-010-130) 41
Red Butte (WY-010-131) 50
McCullough Peaks (WY-010-135) 57

CHAPTER IV - ENVIRONMENTAL CONSEQUENCES 67

Bobcat Draw Badlands (WY-101-126) 67
Sheep Mountain (WY-010-130) 75
Red Butte (WY-010-131) 82
McCullough Peaks (WY-010-135) 87
Social & Economic Summary Analysis 94

CHAPTER V - CONSULTATION AND COORDINATION 101

Development of the Proposal 101
Development of the EIS 101
Public Input Received 103
Review of the EIS 103

APPENDIX 105

GLOSSARY 111

BIBLIOGRAPHY 113

TABLE OF CONTENTS

Page

LIST OF TABLES

Table I-1 WSA's analyzed in the Wilderness Suitability EIS: Grass Creek Cody Resource Area . . . 5
Table II-1 Management Strategies Under Wilderness and Nonwilderness Alternatives . . . 10
Table II-2 Comparative Analysis of Cumulative Impacts of Alternatives . . . 25
Table III-1 Bobcat Draw Badlands ROS Classes . . . 33
Table III-2 Bobcat Draw Badlands Livestock Grazing Allocations . . . 36
Table III-3 Sheep Mountain ROS Classes . . . 43
Table III-4 Sheep Mountain Livestock Grazing Allocations . . . 45
Table III-5 Red Butte ROS Classes . . . 51
Table III-6 Red Butte Livestock Grazing Allocations . . . 52
Table III-7 McCullough Peaks ROS Classes . . . 59
Table III-8 McCullough Peaks Grazing Allocations . . . 61
Table IV-1 Adverse Impacts, Short Term Vs. Long Term Use, Irreversible/Irretrievable Resource Commitment . . . 96
Table V-1 List of Preparers . . . 102

LIST OF MAPS

Map I-1 EIS location & location of the 4 WSAs in Grass Creek/Cody R.A.s . . . 7
Map II-1 Bobcat Draw Badlands - Alternatives . . . 15
Map II-2 Sheep Mountain - Alternatives . . . 17
Map II-3 Red Butte - Alternatives . . . 19
Map II-4 McCullough Peaks - Alternatives . . . 21
Map III-1 Bobcat Draw Badlands - Grazing Allotments . . . 37
Map III-2 Bobcat Draw Badlands - Oil & Gas Production and Lease Status . . . 39
Map III-3 Sheep Mountain - Grazing Allotments . . . 46
Map III-4 Sheep Mountain - Oil & Gas Production and Lease Status . . . 48
Map III-5 Red Butte - Grazing Allotments . . . 53
Map III-6 Red Butte - Oil & Gas Production and Lease Status . . . 55

TABLE OF CONTENTS

Page

Map III-7 McCullough Peaks - Grazing Allotments 62

Map III-8 McCullough Peaks - Oil & Gas Production and Lease Status 64

SUMMARY

This environmental impact statement (EIS) documents the effects expected to result from wilderness designation or nondesignation of public lands in four wilderness study areas (WSAs) located in the Bighorn Basin of north central Wyoming. This EIS is in response to Section 603 of the Federal Land Policy and Management Act (FLPMA), which directs the Bureau of Land Management to inventory, study, and report to Congress, through the Secretary of the Interior and President, those public lands suitable for preservation as wilderness. The four areas discussed in this EIS were found to have basic wilderness characteristics, but consideration of the wilderness study criteria has resulted in recommendations that none are suitable for wilderness designation by Congress. A summary of each wilderness study area follows.

BOBCAT DRAW BADLANDS (WY-010-126)

NO WILDERNESS ALTERNATIVE(Proposed Action)

No acreage would be recommended for wilderness designation under this alternative. Exploration for oil and gas would probably alter natural character to the point that wilderness values would be irretrievably lost. Watershed, scenic, and wildlife values could also be adversely affected by oil and gas activity. The oil and gas potential is rated as high, but whether any would actually be produced is unknown. Any produced oil or gas would represent an irreversible commitment of resources.

ALL WILDERNESS ALTERNATIVE

Under this alternative the 17,150 acres in the existing wilderness study area (WSA) would be designated as wilderness. Natural character of the designated lands would be protected, but oil and gas exploration on two state sections could make it impossible for management to maintain wilderness values on much of the area. Watershed, scenic, and wildlife values would be protected on those parts of the designated area not affected by activity on the state sections. Vehicle access restrictions should not affect recreation use or livestock grazing. The designated area would be closed to oil and gas exploration. Any production foregone would not represent an irreversible commitment of resources.

CONFLICT REDUCTION ALTERNATIVE

This alternative would recommend wilderness designation for 18,540 acres consisting of the existing WSA plus two state sections. The state sections would be acquired from the state of Wyoming, probably by exchange. The possibility that oil and gas activity on the state sections would degrade wilderness values would be eliminated, and manageability of the area as wilderness would be substantially enhanced. Some additional restrictions on motor vehicle access for nonwilderness recreation would apply, and the acreage closed to oil and gas exploration and development would be increased.

WILDERNESS MANAGEABILITY ALTERNATIVE

This alternative would recommend wilderness designation for 22,440 acres. This area would include the Conflict Reduction Alternative area plus an additional 3,900 acres of public land. Protection of wilderness values would be maximized, with the inclusion of an area offering outstanding primitive recreation opportunity. Protection of scenic, watershed, and wildlife values would be extended. Oil and gas exploration and development would be precluded on the entire area.

SHEEP MOUNTAIN (WY-010-130)

NO WILDERNESS ALTERNATIVE (Proposed Action)

No acreage would be recommended for wilderness designation under this alternative. It is expected that wilderness values would be permanently degraded by the impacts of oil and gas exploration on the natural character. Oil and gas activity also could adversely affect watershed, wildlife, scenic, and paleontological values with the extent of impact depending on the type and amount of activity. While the potential for energy resource production is believed to be good, there is no assurance that producible oil or gas resources are actually present.

ALL WILDERNESS ALTERNATIVE

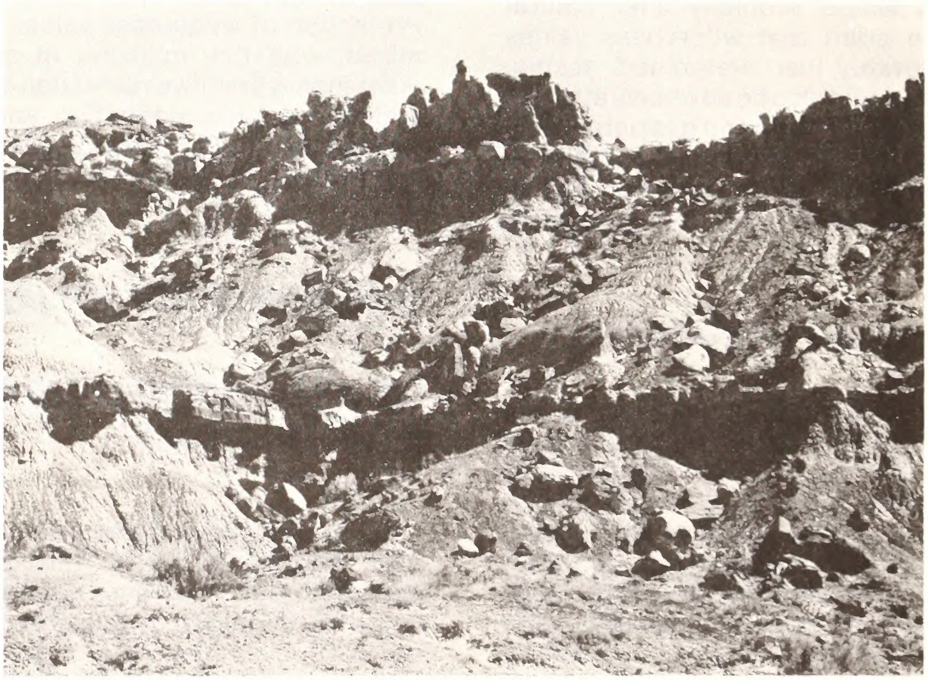
The 22,210 acres in the WSA would be recommended for wilderness designation under this alternative. Wilderness values would be protected on most of this acreage, but the presence of a split-estate inholding and a finger of non-WSA land would make it impossible for wilderness management to assure protection on roughly the southern third of the area. Oil and gas activity on the split-estate tract and non-WSA finger could adversely affect the wilderness attributes of naturalness and solitude as well as other resource values including watershed, wildlife, and visual resources. Livestock grazing and nonwilderness recreation activity should not be significantly affected. The designated area would be closed to oil and gas exploration and development, but these uses could still occur on the split-estate section. Any oil or gas production foregone would not represent an irreversible commitment of resources.

CONFLICT REDUCTION ALTERNATIVE

The 14,540 acres recommended for designation under this alternative would include part of the existing study area plus the split-estate inholding. The mineral rights to that section would be acquired from the state of Wyoming. The area included under this alternative would be a single manageable block with no inholdings. As a result wilderness values would be as well protected under this alternative as they would be under the All Wilderness Alternative. The practical effects on most other resource values would not differ significantly from those anticipated under the All Wilderness Alternative, but a considerably smaller area would be closed to oil and gas development.

WILDERNESS MANAGEABILITY

This alternative would recommend 23,800 acres for designation as wilderness. The area would include the existing WSA, the section of split-estate land, and the finger of non-WSA land. Protection of wilderness values would be maximized by the large area included and by the



Sheep Mountain WSA

elimination of the threat of development on the split-estate section and the finger of non-WSA land. Development restrictions would benefit watershed, wildlife, and scenic values. Vehicle access would be more restricted than under the All Wilderness Alternative, but the affects on nonwilderness recreation and livestock management should not be significant. The entire area would be closed to oil and gas exploration and development.

RED BUTTE (WY-010-131)

NO WILDERNESS ALTERNATIVE (Proposed Action)

No acreage would be recommended for wilderness designation under this alternative. The potential for oil and gas production in this area is high, so it is anticipated that energy exploration would take place. Wilderness, wildlife, scenic, and watershed values would be adversely effected in proportion to the level of exploration and production that occurred. In spite of the high potential, there is no certainty that any oil or gas would be produced.

ALL WILDERNESS ALTERNATIVE

The 10,910 acres of the WSA would be recommended for wilderness designation under this alternative. This alternative would generally protect natural character on the designated lands, but activity outside the area would degrade primitive recreation and solitude on a portion of the designation. Development restrictions would serve to protect watershed, wildlife, scenic, and paleontological values. Livestock management operations and nonwilderness recreation should not be significantly effected. Oil and gas exploration and production would be precluded on the designated area.

WILDERNESS MANAGEABILITY ALTERNATIVE

Under this alternative 10,250 acres would be recommended for designation. The only difference between this alternative and the All Wilderness Alternative is that a few hundred acres would be excluded from designation. The natural character of this acreage has been degraded by the presence of large stock reservoirs and cherry-stem roads.

McCULLOUGH PEAKS (WY-010-335)

NO WILDERNESS ALTERNATIVE (Proposed Action)

There would be no acreage recommended for wilderness designation under this alternative. It is anticipated that wilderness values would be permanently degraded by the impacts of oil and gas exploration on natural character. Oil and gas activity also could be expected to have adverse impacts on watershed, scenic, and wildlife values. The degree of impact would depend on the level and type of activity. The potential for oil and gas is high, but whether any would actually be produced is unknown. Any oil and gas production would irreversibly commit resources.

ALL WILDERNESS ALTERNATIVE

This alternative would recommend the 24,570 acres in the existing WSA for wilderness designation. A section of state land surrounded by the WSA would not be included in the designation. Oil and gas activity on this section along with a route of access to the section could degrade natural character and affect opportunities for primitive recreation and solitude on as much as a third of the designated lands. Wildlife, scenic, and watershed values would be protected but could be affected by development on the state section. There would be a slight loss of vehicle-based recreation opportunities, and some minimal restrictions on vehicle use for livestock management. The designated area would be closed to oil and gas operations, which might actually encourage exploration on the state section. There is no way to estimate how much oil and gas production, if any, would be foregone under this alternative. Any production foregone would not represent an irreversible commitment of resources.

CONFLICT REDUCTION ALTERNATIVE

Under this alternative 23,580 acres would be recommended for wilderness designation. This acreage would consist of the existing WSA modified by dropping a strip of land along the northern boundary and adding the state section and a section of split-estate land. This area would be a single, manageable block with the threat eliminated that development on the state or split-estate sections could degrade wilderness values. Exclusion of the strip of land along the northern border, would not significantly affect wilderness character or other resource uses. Impacts on nonwilderness recreation and livestock grazing should be even less than those expected under the All Wilderness Alternative. The area on which oil and gas exploration would be precluded would be only slightly smaller than that affected by the All Wilderness Alternative.

WILDERNESS MANAGEABILITY ALTERNATIVE

This alternative would recommend 29,590 acres for wilderness designation. It would add 6,010 acres to the area included under the Conflict Reduction Alternative. The added area possesses wilderness characteristics, particularly outstanding opportunities for primitive recreation; its inclusion would enhance manageability by facilitating visitor use distribution. This alternative would also extend the Conflict Reduction Alternative benefits or adverse effects on other resource values to the additional area included.

McCullough Peaks WSA

CHAPTER I

PURPOSE AND NEED

This environmental impact statement (EIS) evaluates the potential impacts of designating, or not designating, four Wilderness Study Areas (WSAs) as units of the National Wilderness Preservation System. Because wilderness designation requires an Act of Congress, preparation of an EIS is required under the provisions of the National Environmental Policy Act. The WSAs addressed in this EIS are administered by the Bureau of Land Management (BLM), Worland District. Three are located within the District's Grass Creek Resource Area, while the fourth is in the Cody Resource Area. These areas are listed in the following table, and their general location is depicted by Map I-1.

TABLE I-1

WSAs ANALYZED IN THE WILDERNESS SUITABILITY EIS: GRASS CREEK AND CODY RESOURCE AREAS

Area #	Name	Acres
WY-010-126	Bobcat Draw Badlands	17,150
WY-101-130	Sheep Mountain	22,210
WY-010-131	Red Butte	10,910
WY-010-335	McCullough Peaks	24,570
Total		**74,840**

BLM's wilderness program is a result of the Federal Land Policy and Management Act (FLPMA) of 1976 (Public Law 94-579). FLPMA is Congress' basic guidance to the BLM on how to manage the public lands. One portion of FLPMA (Section 603(a)) directs the BLM to inventory public lands to identify those that have wilderness character. Lands with wilderness characteristics must then be studied to determine their suitability or nonsuitability for wilderness, based on an evaluation of all the resource values and uses of the area. These suitability determinations are submitted to the Secretary of Interior who must report his recommendations to the President no later than October 21, 1991, on which areas should be designated as wilderness. The President must report his final recommendations to Congress within two years. Congress will decide if any of the recommended areas are to be designated as wilderness.

WILDERNESS REVIEW PROCESS

To accomplish the mandate of section 603 of FLPMA, the BLM has developed a framework for the wilderness review process which has three phases:

1. Inventory—The inventory phase involves looking at the public lands to identify areas containing wilderness resources that meet the criteria established by Congress in the Wilderness Act of 1964 (see appendix A). Such areas are identified as Wilderness Study Areas.
2. Study—The study phase involves the process of determining which Wilderness Study Areas will be recommended as suitable for wilderness designation and which will be recommended as nonsuitable. These determinations, made through the BLM's land use planning system, consider all values, resources, and uses of the public lands (see appendix B). Preparation of this EIS is part of the study phase.
3. Reporting—The reporting phase consists of actually forwarding the suitable and nonsuitable recommendations through the Secretary of the Interior and the President to Congress. Mineral surveys, environmental impact statements, and other data are submitted with these recommendations.

The inventory phase of the process was completed for the Grass Creek and Cody Resource Areas in November 1980. The inventory results, published in the November 14, 1980, issue of the *Federal Register*, identified the four areas listed in Table I-1 as WSAs.

The study phase for these areas commenced with a revision of the Management Framework Plan (MFP) for the Grass Creek Resource Area. This revision was completed in July of 1983. The MFP for the Cody Resource Area was amended to address wilderness designation for the McCullough Peaks WSA in January 1984. These planning efforts utilized the planning criteria and quality standards specified by the BLM wilderness study guidance (see appendix B) to consider alternatives and select the preferred alternatives for this EIS.

Publication of this draft EIS (DEIS) will be followed by a public comment period including formal public hearings. Comments will be used to revise this draft and prepare a preliminary final EIS which will include a proposal for recommending wilderness designation. All planning documents and maps not included in this (DEIS) are available at the Worland District or Cody Resource Area offices.

On December 30, 1982, the Secretary of the Interior amended the original wilderness study area decision. This amendment, based on decisions by the Interior Board of Land Appeals, dropped some areas from the wilderness study list and eliminated split-estate lands (lands where the surface is owned by the Federal Government, but the mineral rights are owned by the state) from other WSAs. This decision dropped the Owl Creek WSA, containing 710 acres in the Grass Creek Resource Area, from consideration for wilderness designation. The acreage and boundaries of the Red Butte, Sheep Mountain, and McCullough Peaks WSAs also were slightly altered by the decision.

MAJOR ISSUES AND CONCERNS

The wilderness review inventory phase and the planning step of the study phase for the Grass Creek and Cody Resource Areas involved many people. Public comment periods, open houses, public meetings, and mail solicitations gathered information about the wilderness views and concerns of the public. Information and comment were obtained from state and local government and from other Federal agencies. (A list of the organizations, agencies, and individuals consulted during this process is provided in Chapter V.) Within BLM, a wide variety of staff and management specialists were involved. The participation of these groups resulted in certain issues being identified as central to the decision on the suitability for wilderness designation of the WSAs in the Grass Creek and Cody Resource Areas. These issues include:

MINERALS

The WSAs considered in this EIS have been evaluated as having high potential for production of oil or natural gas. This potential creates two interrelated issues:

1. Wilderness designation could have an adverse effect on exploration and development of oil and gas resources.
2. Oil and gas exploration and development activity in these study areas could alter their natural character and degrade wilderness values.

LIVESTOCK GRAZING

Local ranchers are concerned that wilderness designation could adversely affect the livestock industry in a variety of ways:

1. Possible reduction or elimination of livestock grazing in designated wilderness.
2. Reduced access by motor vehicles for managing stock and maintaining or constructing range improvements.
3. Possible conflicts between area visitors and livestock.

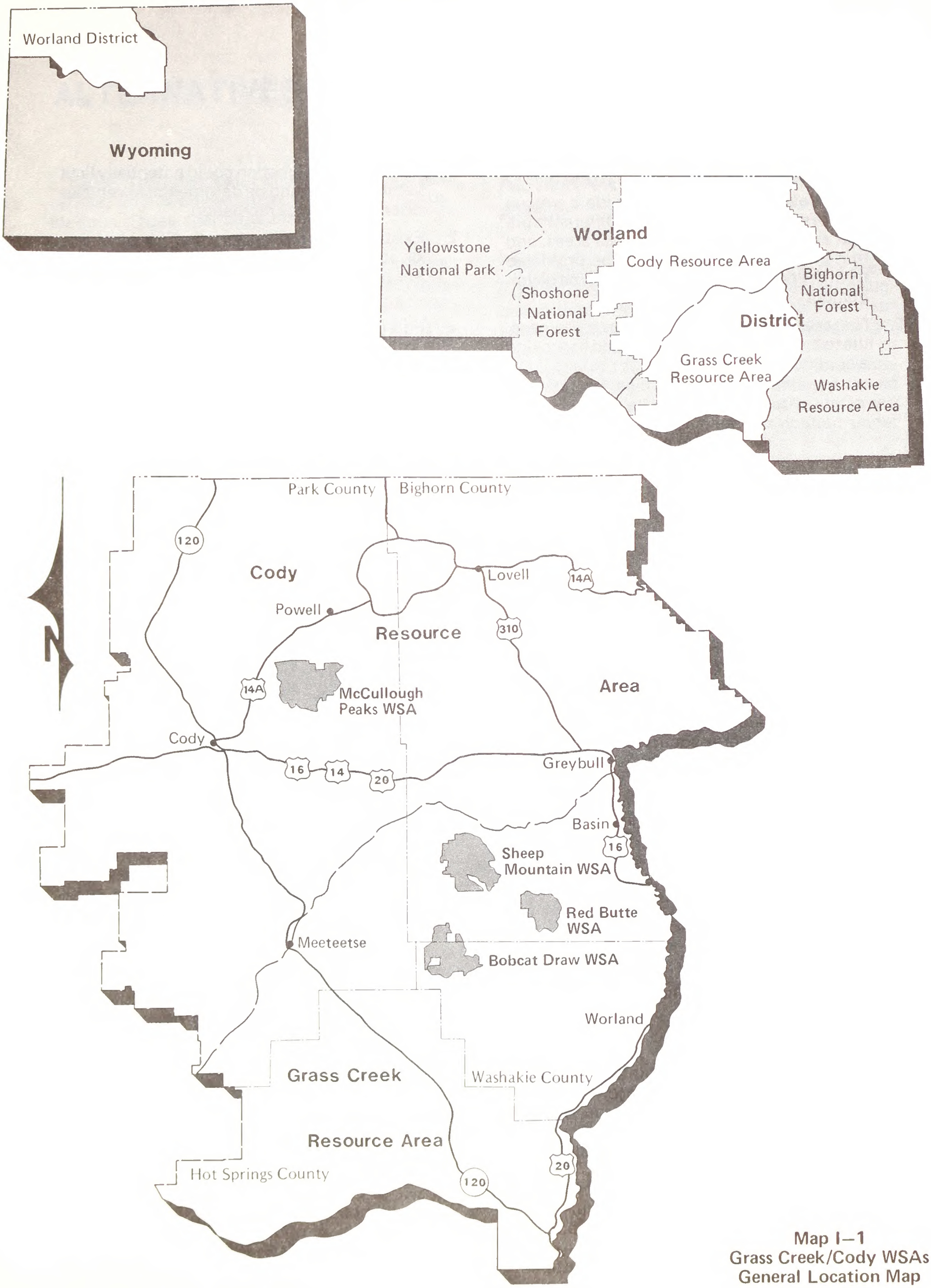
STATE LANDS

Lands owned by the state of Wyoming or lands for which the state owns the mineral rights are located within the external boundaries of three of the WSAs covered in this EIS. Under state law, these lands must be managed to secure the maximum income which can reasonably be realized. This legal requirement could result in use and development on the state lands that would degrade wilderness values on adjacent WSA lands.

WILDERNESS VALUES

Some very diverse views relating to wilderness values have been expressed. These include:

1. That the WSAs covered by this EIS do not actually have wilderness character, or that their wilderness character is so marginal that their designation would produce no meaningful benefits.
2. That there is already enough, or too much, designated wilderness in the region, and that no more is needed.



Map I—1
Grass Creek/Cody WSAs
General Location Map

3. That including these areas in the national wilderness system would protect a type of ecosystem that is not presently represented in the wilderness system.
4. That areas such as these provide a unique type of wilderness opportunity different from that available in other wilderness areas, and that this opportunity needs to be protected from the potential impacts of resource development.
5. That even if they are designated as wilderness, these areas could not be managed to provide a continuing flow of wilderness values.

RECREATION

1. Wilderness designation could potentially limit vehicle access and be detrimental to vehicle-oriented forms of recreation.
2. Existing opportunities for primitive recreation or solitude could be degraded, if the areas are not designated as wilderness.

SOCIAL AND ECONOMIC EFFECTS

Livestock operators and mineral industry representatives expressed concern that wilderness designation would result in a loss of livestock and mineral income to the local economy.

McCullough Peaks WSA

CHAPTER II

ALTERNATIVES INCLUDING THE PROPOSED ACTION

This EIS deals with four wilderness study areas (WSAs) and examines three or four alternatives for each. These alternatives include:

No Wilderness [No Action] - Under this alternative, no acreage in a WSA would be designated as wilderness. The area would continue to be managed in accordance with the laws and regulations that apply to the public lands with specific actions guided by existing Management Framework Plans (MFPs). Because taking no management action whatsoever on public lands is not a viable action under law, the no wilderness alternative is the same as a no action alternative in this case.

All Wilderness - Under this alternative, a WSA would be designated as wilderness witn no modification of the existing WSA boundary. The management objectives and policies that would be applied to areas designated as wilderness are stated in the Bureau Wilderness Management Policy. A copy of this policy may be obtained from any BLM office.

Conflict Reduction - Under this alternative, WSA boundaries would be modified to reduce or eliminate conflicts with other resource uses and values, and the modified area would be designated as wilderness. Boundary changes under this alternative may either shrink or increase the acreage considered for designation.

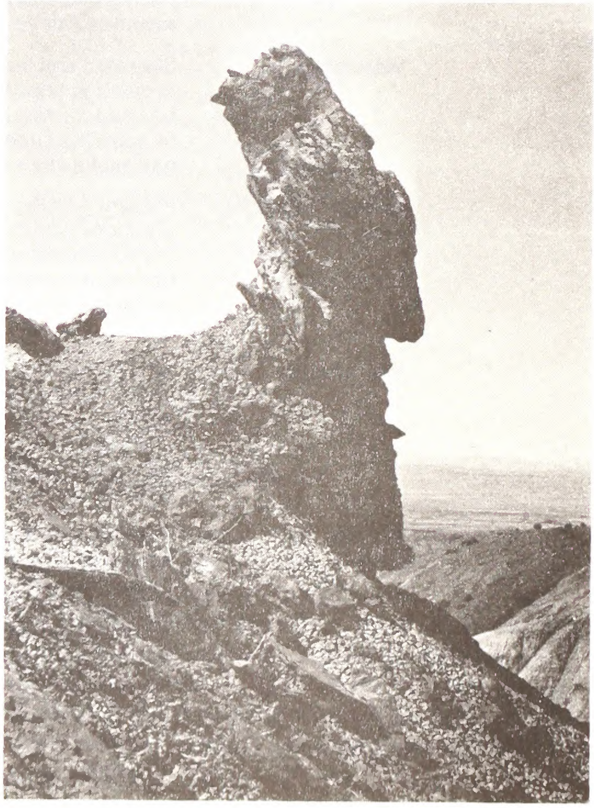
Wilderness Manageability - This alternative would involve modifying WSA boundaries to produce an area that would be most manageable as wilderness. Under this alternative, the modifications identified in the conflict reduction alternative would be supplemented by additional boundary changes designed to produce an area that could be most easily managed as wilderness and protected to preserve its wilderness character.

In Bureau initiated actions, such as wilderness studies, the "proposed action" and the agency "preferred alternative" are the same. For the sake of consistency, the term "proposed action" will be used throughout the EIS. As the alternatives are discussed, the proposed action for each WSA will be identified. This alternative has been selected based on planning updates which have employed the criteria and standards listed in Appendix B. These proposed actions are preliminary and are subject to change based on the results of this EIS, public comment, and administrative review.

ALTERNATIVES BY STUDY AREA

The following paragraphs describe the areas that would be recommended for wilderness designation under the various alternatives. The management approaches that would be utilized under these alternatives are indicated by Table II-1. The management strategies shown in the "Nonwilderness Management" column of Table II-1 would apply to the No Wilderness Alternative and to any lands not recommended for designation under any of the other alternatives.

Strategies shown in the "Wilderness Management" column of Table II-1 would apply to lands actually recommended for designation under the All Wilderness, Conflict Reduction, or Wilderness Manageability Alternatives. The management strategies listed in Table II-1 are a part of the alternatives to which they apply.



Red Butte WSA

TABLE II-1

MANAGEMENT STRATEGIES UNDER WILDERNESS AND NONWILDERNESS ALTERNATIVES

Resource	Nonwilderness Management	Wilderness Management
Wilderness Values	Wilderness values would not be explicitly managed. Measures designed to protect watershed, wildlife, and visual resources would protect natural character to some extent.	Management would focus on preserving natural character and opportunities for solitude and primitive recreation. Activities which would modify natural character would be prohibited. Information, education, and permits (if necessary) would be used to manage visitor use to protect natural character and solitude. Development of facilities, such as trails, would be done only where required to protect wilderness values.
Recreation	Would allow all forms of recreation use consistent with resource capability. ORV use would generally be limited to either existing roads and trails or designated roads and trails.	Management would seek to provide opportunities for primitive recreation to the extent consistent with preservation of natural character and solitude. Motorized vehicle use would be prohibited.
Visual	Visual Resource Management criteria would be used to mitigate the visual impacts of management actions and resource use activities.	Scenic values would be protected as an integral part of wilderness value preservation under VRM Class I designation.
Watershed	Standard soil and watershed protection stipulations would be used to mitigate the impacts of activities such as oil and gas exploration.	Watershed treatments, such as detention dams, water spreaders, and seeding would be precluded, but no such treatments are planned in these areas.
Livestock Grazing	Present grazing management practices would continue. Improvements and changes in use would be approved by usual range management procedures.	Established grazing use would continue (subject to range management standards). Existing facilities could be maintained. Motor vehicle use would be restricted but not precluded.
Wild Horses	Wild Horse management plans would reduce horse numbers and largely eliminate horse use in some areas. Herd numbers would be maintained by periodic gathering.	Management would be essentially the same as under Nonwilderness Management.
Wildlife	Standard protection stipulations would be used to mitigate the impacts of developments and activities on wildlife populations and habitat. No projects to enhance wildlife values or habitat are currently planned.	Wildlife populations and habitat would be protected as an integral part of wilderness natural character preservation. Hunting use would continue under state of Wyoming administration. Habitat manipulation would be restricted but not entirely precluded.

TABLE II-1 (Continued)

MANAGEMENT STRATEGIES UNDER WILDERNESS AND NONWILDERNESS ALTERNATIVES

Resource	Nonwilderness Management	Wilderness Management
Minerals	Standard BLM minerals management regulations would apply. Standard oil and gas stipulations protecting watershed, wildlife, visual and cultural resources would be utilized. Locatable mineral resource development activity is not anticipated.	Oil and gas leasing, exploration, and development would be precluded except in limited cases where valid existing rights exist. Measures to mitigate the impact of development of existing rights would be applied. Location of mining claims would be precluded, but the potential for economic deposits of locatable minerals is very low.
Cultural Resources	Cultural Resource clearance procedures would prevent impacts that could result from management actions or resource development.	Motorized access for major archeological digs would be precluded but no sites warranting such investigation are known to be present.
Paleontological Resources	Standard paleontological resource protection regulations would be followed, but would not fully protect the type of site present in these areas from development impacts.	Motorized access for site investigations would be restricted. Wilderness protection of natural character would reinforce paleontological resource regulations.
Realty and Access	Lands actions and use authorizations would follow standard BLM regulations and procedures.	Lands actions and use authorizations would be mostly precluded. Access would be provided to state land inholdings, if required, and to private or state lands adjacent to wilderness areas, if other routes are not available. Some alternatives would involve acquiring state lands or state mineral rights by exchange or purchase.

BOBCAT DRAW BADLANDS (WY-010-126)

No Wildrness Alternative (Proposed Action)

Under this alternative, no acreage would be recommended for wilderness designation. Management prescriptions identified in the existing Grass Creek Resource Area Management Framework Plan would be implemented.

All Wilderness Alternative

Under this alternative, the 17,150 acres in the existing wilderness study area would be recommended for wilderness designation. The surrounded state section (Section 16, T. 48 N., R. 97 W.) and the state section which is almost surrounded (Section 36, T. 49 N., R. 97 W.) would not be included in the designated area, and use of the five cherry-stem roads in the area would not be restricted (Map II-1).

Conflict Reduction Alternative

Under this alternative, a total of 18,540 acres would be recommended for designation as wilderness. This acreage would consist of the existing wilderness study area, the two state sections mentioned in the All Wilderness Alternative, and 110 acres of public land in section 17, T. 48 N., R. 97 W. which was excluded from the WSA because it is wedged between one of the state sections and a cherry-stem road (Map II-1). This alternative would involve acquiring the two state sections from the state of Wyoming. It would also include restricting vehicle use of the cherry-stem roads in the area to that necessary for established grazing use and maintenance of the facilities to which these routes provide access.

Wilderness Manageability Alternative

This alternative would recommend a total of 22,440 acres for wilderness designation. The area would be that included in the Conflict Reduction Alternative plus 3,900 acres of public land known as Paradise Alley and located south of the present WSA boundary (see Map II-1). Again, it would be necessary to acquire the two state sections, and vehicle use of the cherry-stem routes within the exterior boundary of the designated area would be restricted.

SHEEP MOUNTAIN (WY-010-130)

No Wilderness Alternative (Proposed Action)

Under this alternative, no acreage would be recommended for wilderness designation. Management prescriptions identified in the existing Grass Creek Resource Area Management Framework Plan would be implemented.

All Wilderness Alternative

Under this alternative, the 22,210 acres in the existing wilderness study area would be recommended for wilderness designation. The section of split-estate land (Tract 40, T. 50 N., R. 96 W.), on which the state of Wyoming owns the minerals rights, would not be included in the area recommended for designation. Use of the four cherry-stem roads in the area would not be restricted (Map II-2).

Conflict Reduction Alternative

This alternative would involve recommending 14,540 acres for designation as wilderness. Under this alternative, the south boundary of the recommended area would be two to three miles north of the present WSA boundary. It would be located

Bobcat Draw Badlands WSA

along a combination of roads (that are now WSA cherry-stems), topographic features, and legal subdivision boundaries (Map II-2). This alternative also would involve obtaining the mineral rights to the split-estate section from the state of Wyoming and incorporating that tract in the designation. Vehicle use on two remaining segments of cherry-stem road would be restricted to that required to continue established grazing use and maintain facilities.

Wilderness Manageability Alternative

This alternative would recommend designation of 23,800 acres. This acreage would consist of the existing wilderness study area, the section of split-estate land (Tract 40, T. 50 N., R. 96 W.), and the public lands in the long finger of non-WSA land that extends into the WSA from the southern boundary (Map II-2). This alternative would require obtaining the mineral rights to the split-estate section from the state of Wyoming. It would involve closing one of the two roads that resulted in the exclusion of the long finger of land from the WSA and allowing natural processes to rehabilitate that route. It would also include restricting vehicle use of the cherry-stem roads in the area to that necessary for established grazing activity and maintenance of facilities.

RED BUTTE (WY-010-131)

No Wilderness Alternative (Proposed Action)

No acreage would be recommended for wilderness designation under this alternative. Management prescriptions identified in the existing Grass Creek Resource Area Management Framework Plan would be implemented.

All Wilderness Alternative

Under this alternative, the 10,910 acres in the existing wilderness study area would be recommended for designation as wilderness (Map II-3). Vehicle use on the cherry-stem roads leading to the Twin Pockets Reservoir and the North Fork Detention Dam would not be restricted.

Wilderness Manageability Alternative

This alternative would recommend wilderness designation of 10,250 acres. This alternative would make the road leading to the North Fork Detention Dam an external boundary, rather than a cherry-stem, and would exclude the Twin Pockets Reservoir and its access route from the designated area (Map II-3).

Red Butte WSA

MCCULLOUGH PEAKS (WY-010-335)

No Wilderness Alternative (Proposed Action)

There would be no acreage recommended for wilderness designation under this alternative. The management prescriptions of the Clarks Fork-Shoshone Management Framework Plan would continue in effect until the next planning update.

All Wilderness Alternative

The existing wilderness study area, consisting of 24,570 acres of public land, would be recommended for wilderness designation under this alternative. A state section inholding (Tract 57, T. 54 N., R. 100 W.) would not be included, and the cherry-stem road in the Deer Creek drainage would remain open to vehicle use (Map II-4).

Conflict Reduction Alternative

Under this alternative, 23,580 acres would be recommended for wilderness designation. This acreage would consist of the existing WSA modified by dropping a strip of land along the northern boundary of the WSA and adding the section of state land (Tract 57, T. 54 N., R. 100 W.) and a tract of split-estate land (Lot 39, T. 54 N., R. 99 W.) (Map II-4). It would be necessary to acquire the state section and the mineral rights to the split-estate tract from the state of Wyoming. The cherry-stem road in the Deer Creek drainage would also be closed to motorized use except for that specifically authorized for livestock management and facility maintenance.

Wilderness Manageability Alternative

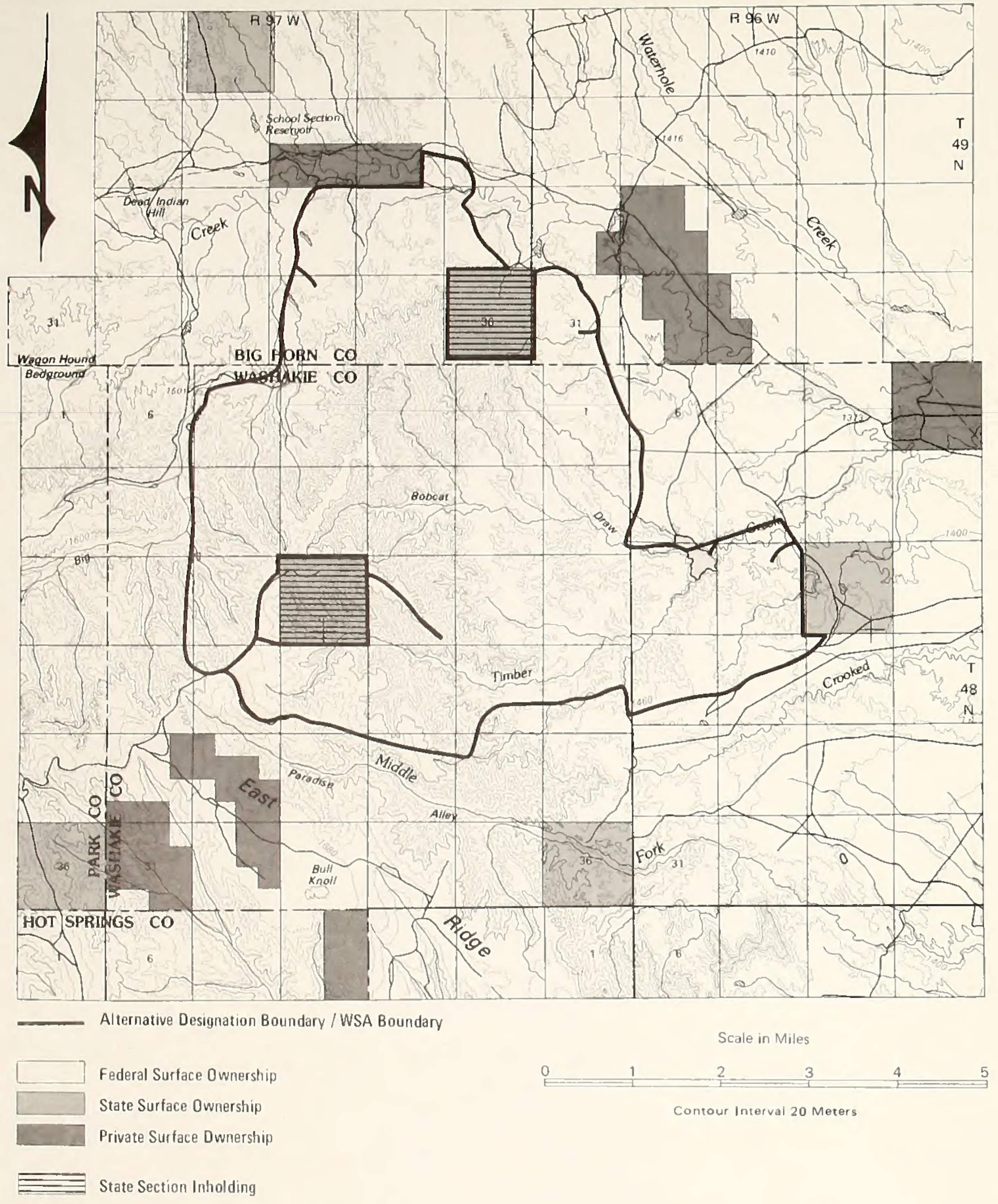
This alternative would involve recommending 29,590 acres for wilderness designation. The area included would consist of the same area as that identified in the Conflict Reduction Alternative plus an additional 6,010 acres of public land located west of the existing WSA boundary (Map II-4). Motorized use of the cherry-stem road in the Deer Creek drainage would be restricted.

PROPOSED ACTION RATIONALE

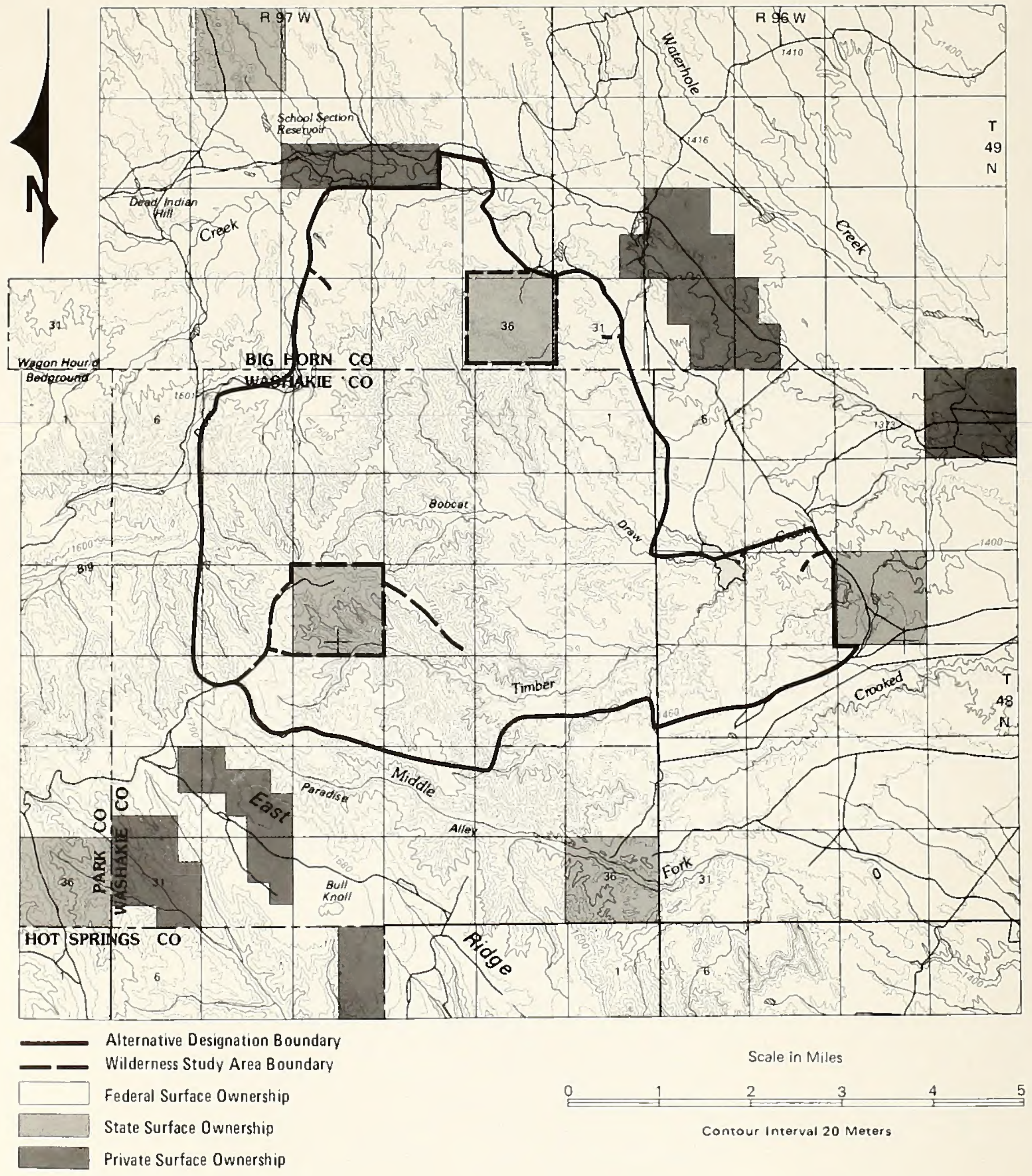
As noted in the previous section, the proposed action for each of the WSAs is the No Wilderness Alternative. These proposed action recommendations were arrived at through the Bureau planning process. They are based on thewilderness study criteria and quality standards (see Appendix B) analyzed in terms of the benefits expected from wilderness designation versus the benefits of resource values and uses which would be foregone under wilderness designation.

Because of the tremendous similarity of the four WSAs and their uses (all consist primarily of Willwood Formation badlands; have similar wilderness, watershed, wildlife, grazing and recreation values; and have high potential for oil and gas production), the rationales for recommending the No Wilderness Alternative were very similar for all four areas. The main points of these rationales can be summarized briefly as follows:

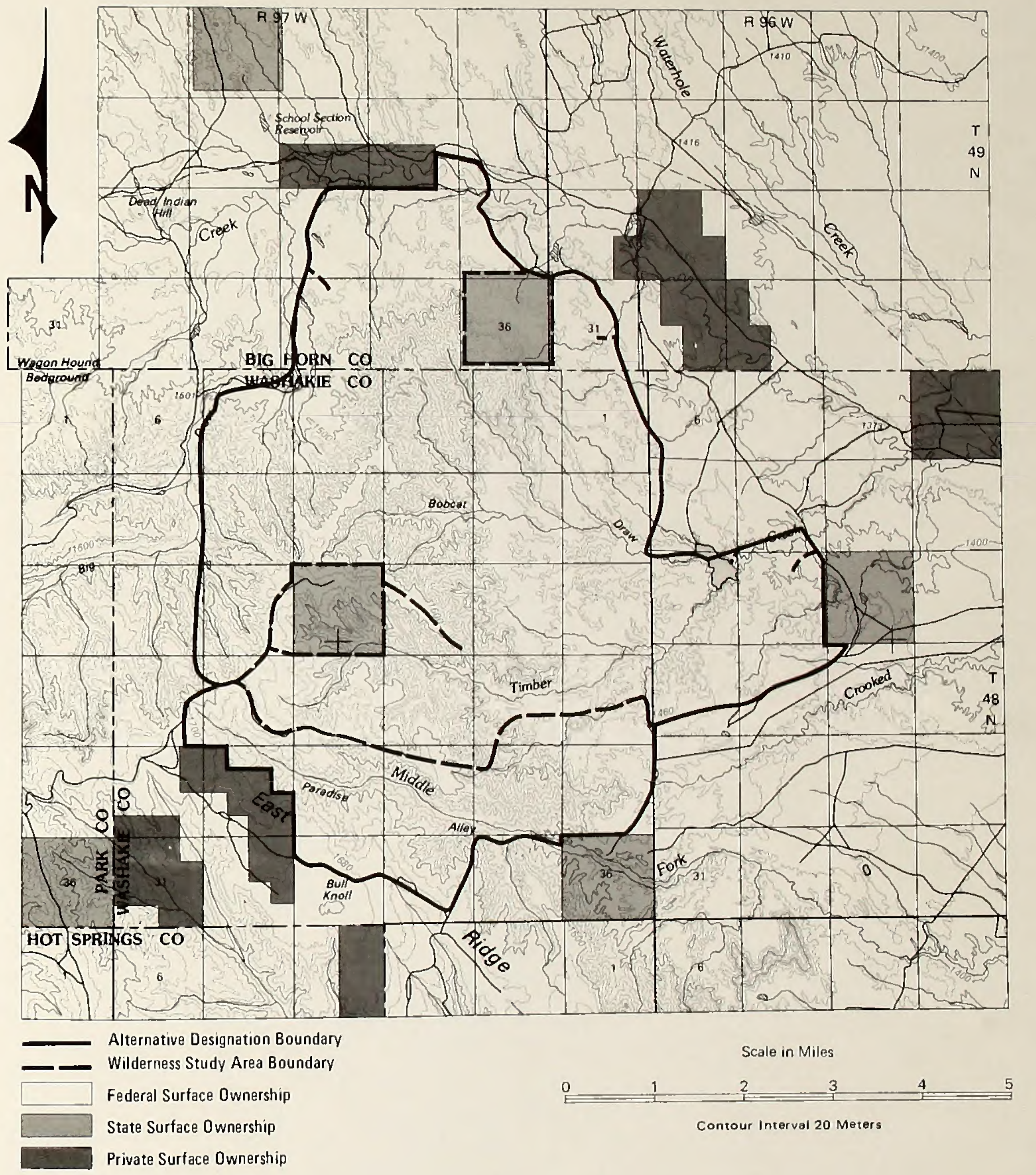
1. The areas do have natural character and they could provide wilderness quality opportunities for solitude and primitive recreation, but the benefits that would be derived from this capability would be minimal because of the wealth of exceptional wilderness resources already designated or administratively endorsed for designation in the region.
2. Values, such as cultural or paleontological resources, wildlife, and wild horses would benefit from the general protection of natural values provided by wilderness designation. However, these values can be given comparable protection by management techniques designed explicitly for the protection of these specific resource values.
3. Because of the amount of designated and administratively endorsed wilderness in the region, designation of these areas would not contribute to "balancing the geographic distribution of wilderness areas".
4. While these WSAs meet the Wilderness Act criterion that an area "generally appears to have been affected primarily by the forces of



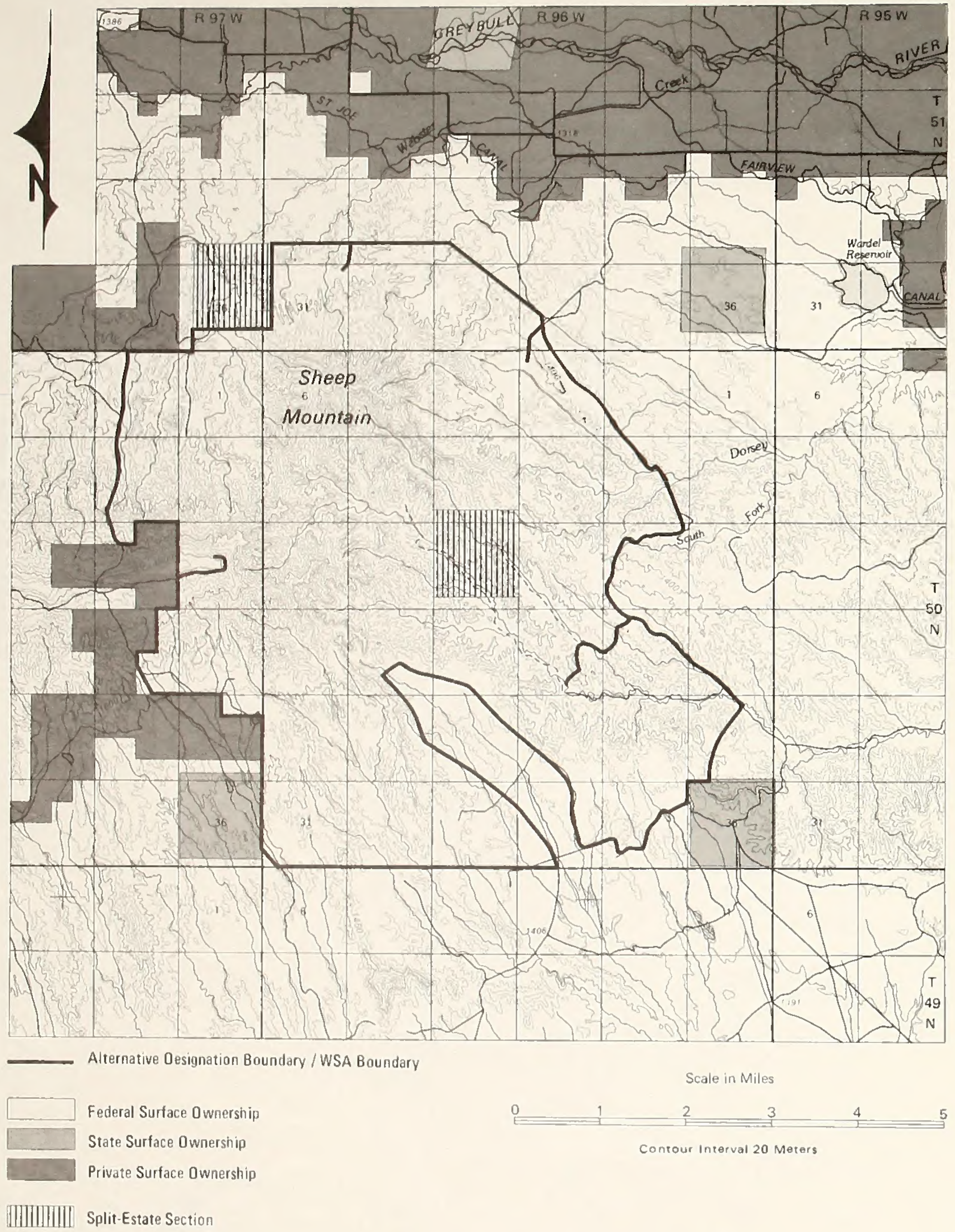
Map II—1
Bobcat Draw Badlands WY-010-126
All Wilderness Alternative and Existing WSA



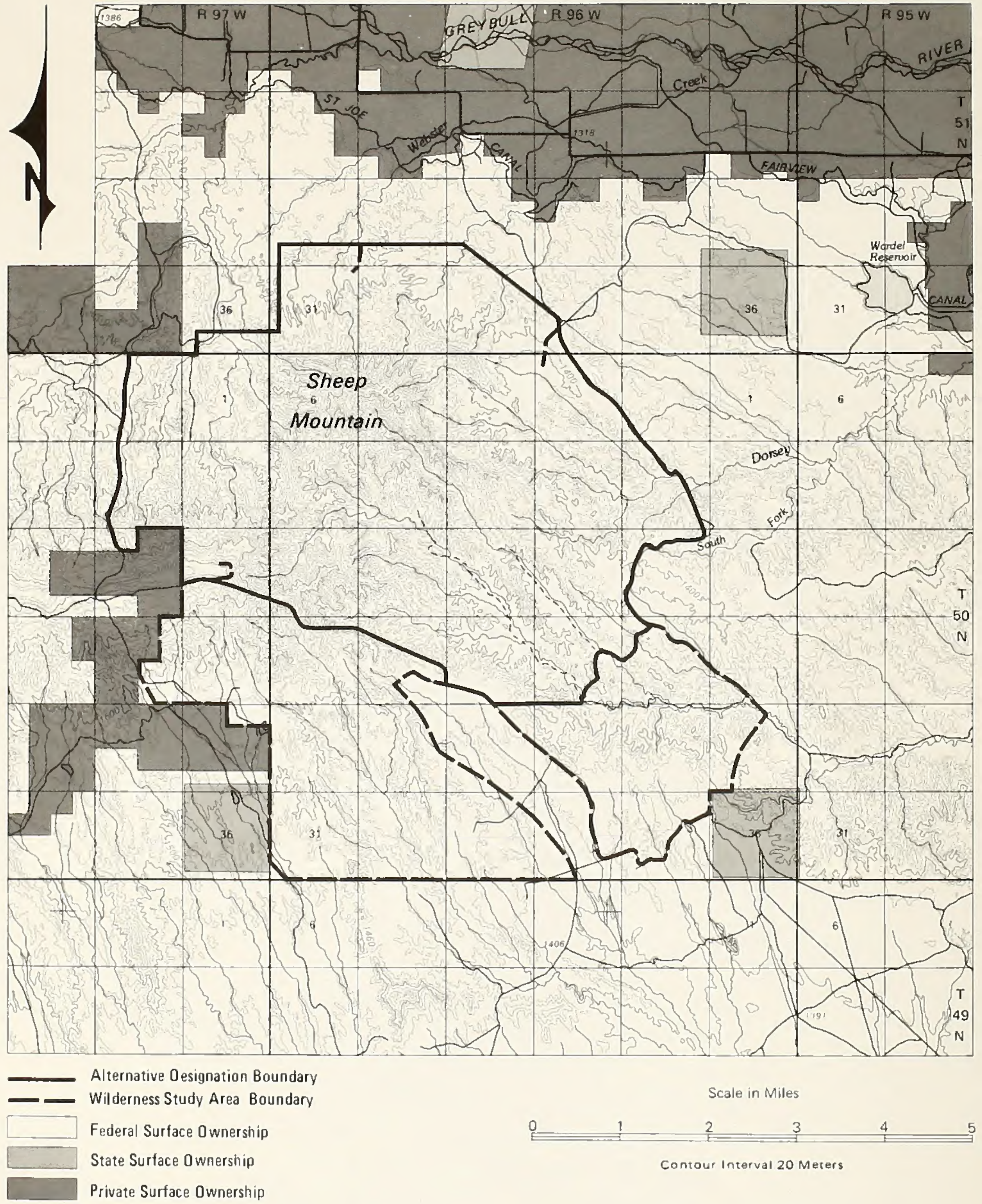
Map II—1
Bobcat Draw Badlands WY-010-126
Conflict Reduction Alternative



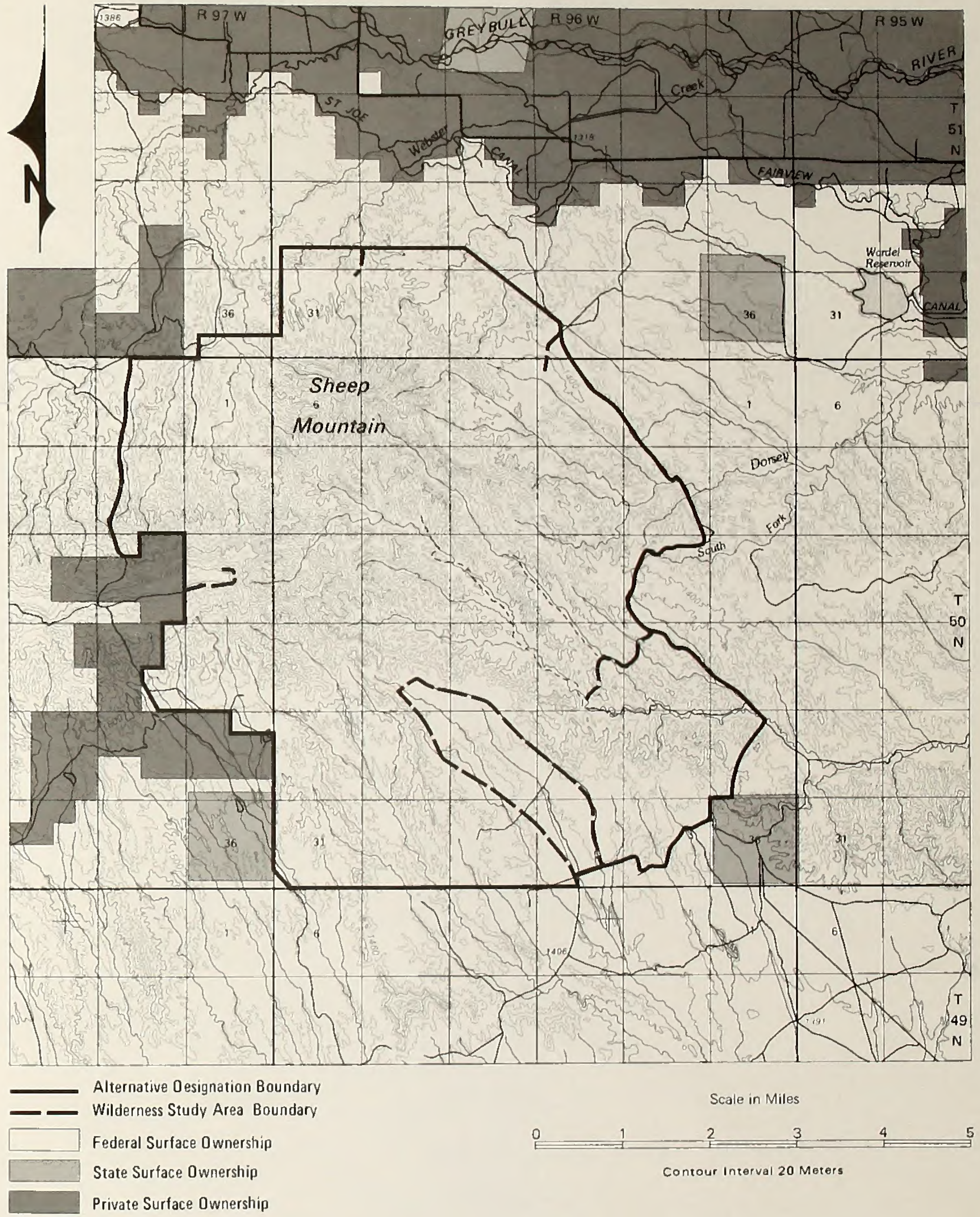
Map II—1
Bobcat Draw Badlands WY-010-126
Wilderness Manageability Alternative



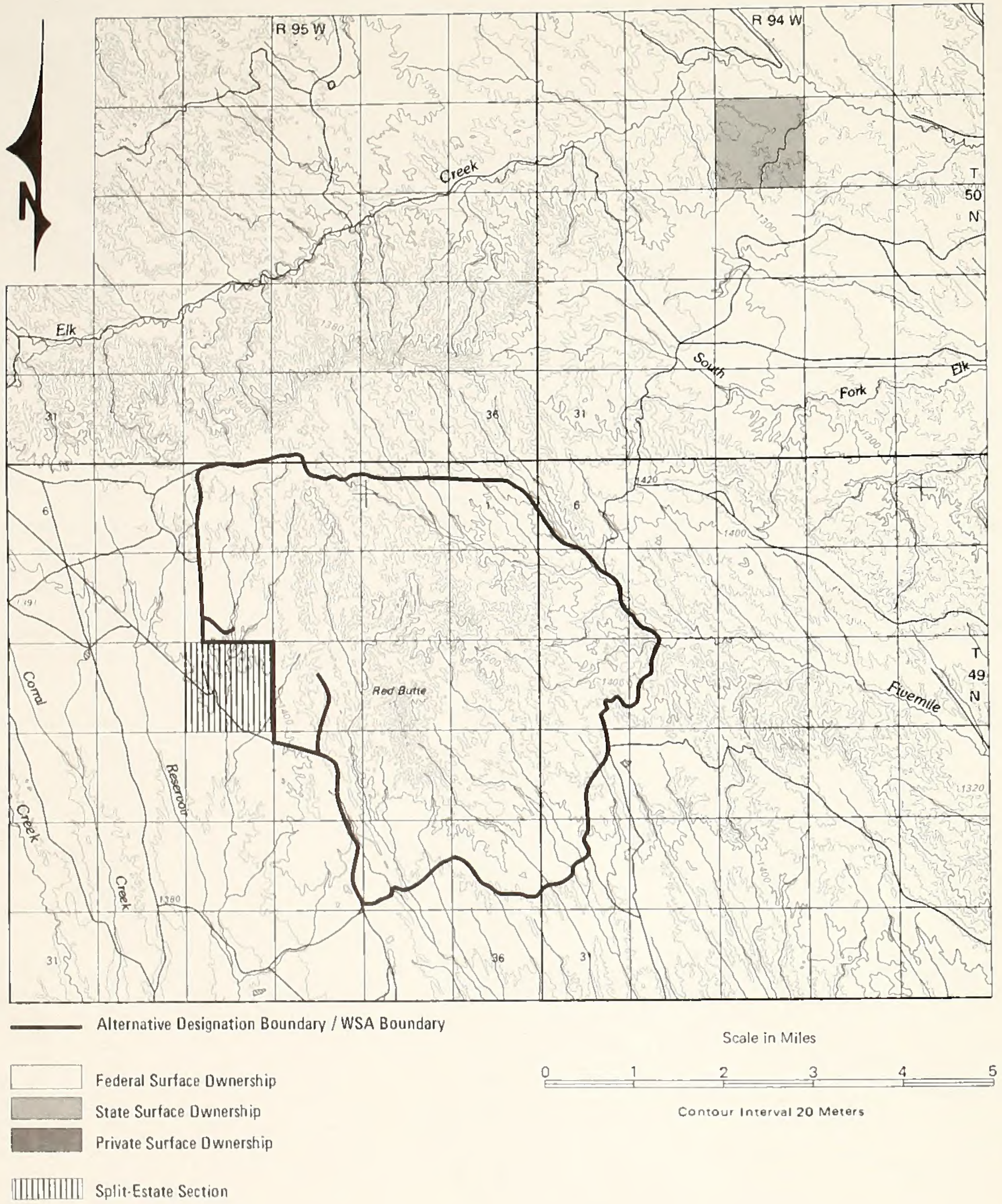
Map II–2
Sheep Mountain WY-010-130
All Wilderness Alternative and Existing WSA



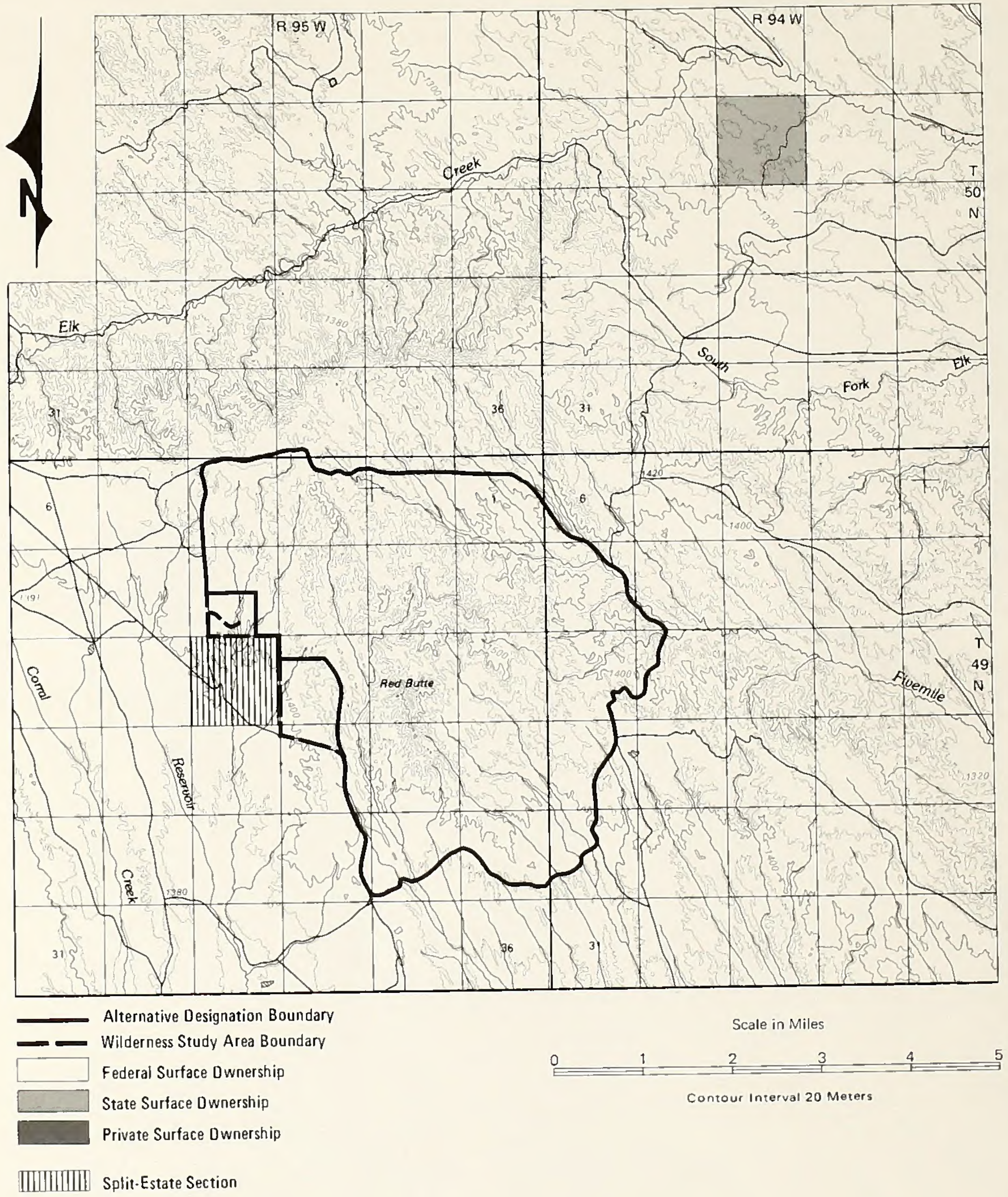
Map II–2
Sheep Mountain WY-010-130
Conflict Reduction Alternative



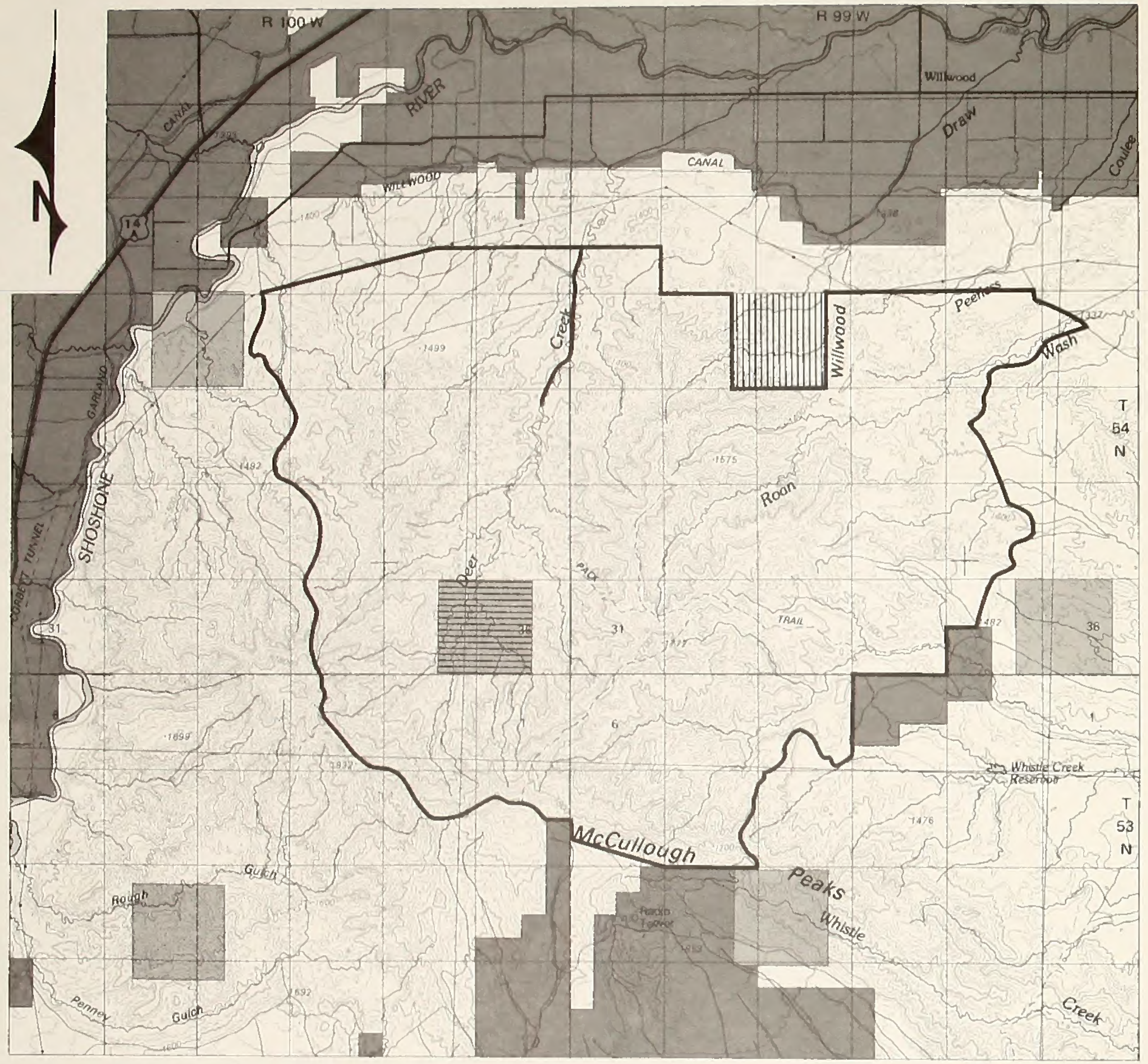
Map II–2
Sheep Mountain WY-010-130
Wilderness Manageability Alternative



Map II–3
Red Butte Wy-010-131
All Wilderness Alternative and Existing WSA



Map II–3
Red Butte WY-010-131
Wilderness Manageability Alternative



━━ Alternative Designation Boundary / WSA Boundary

☐ Federal Surface Ownership

▒ State Surface Ownership

▓ Private Surface Ownership

▤ State Section Inholding

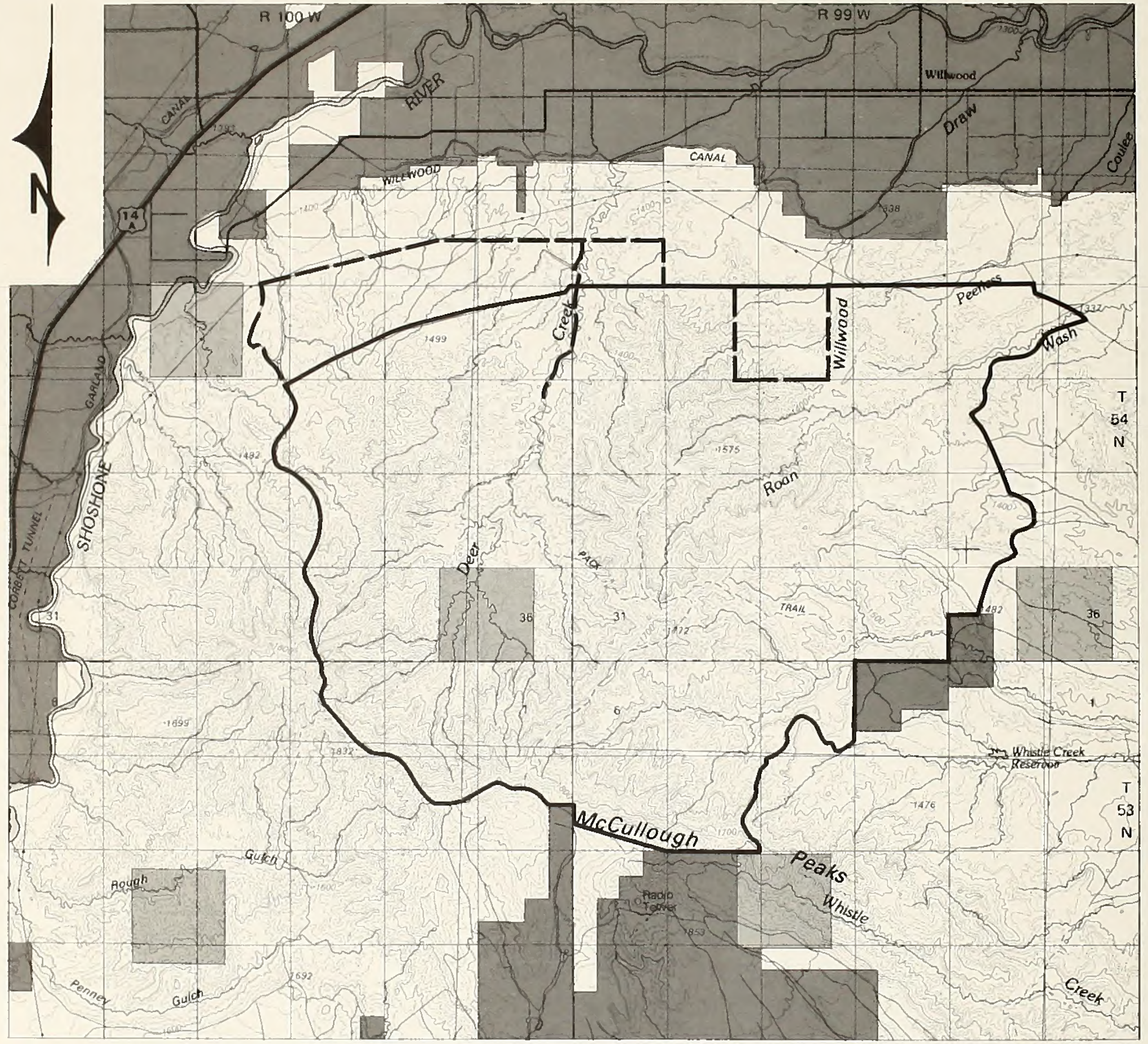
▥ Split-Estate Section

Scale in Miles

0 1 2 3 4 5

Contour Interval 20 Meters

Map II–4
McCullough Peaks WY-010-335
All Wilderness Alternative and Existing WSA



━━ Alternative Designation Boundary

━ ━ Wilderness Study Area Boundary

☐ Federal Surface Ownership

▒ State Surface Ownership

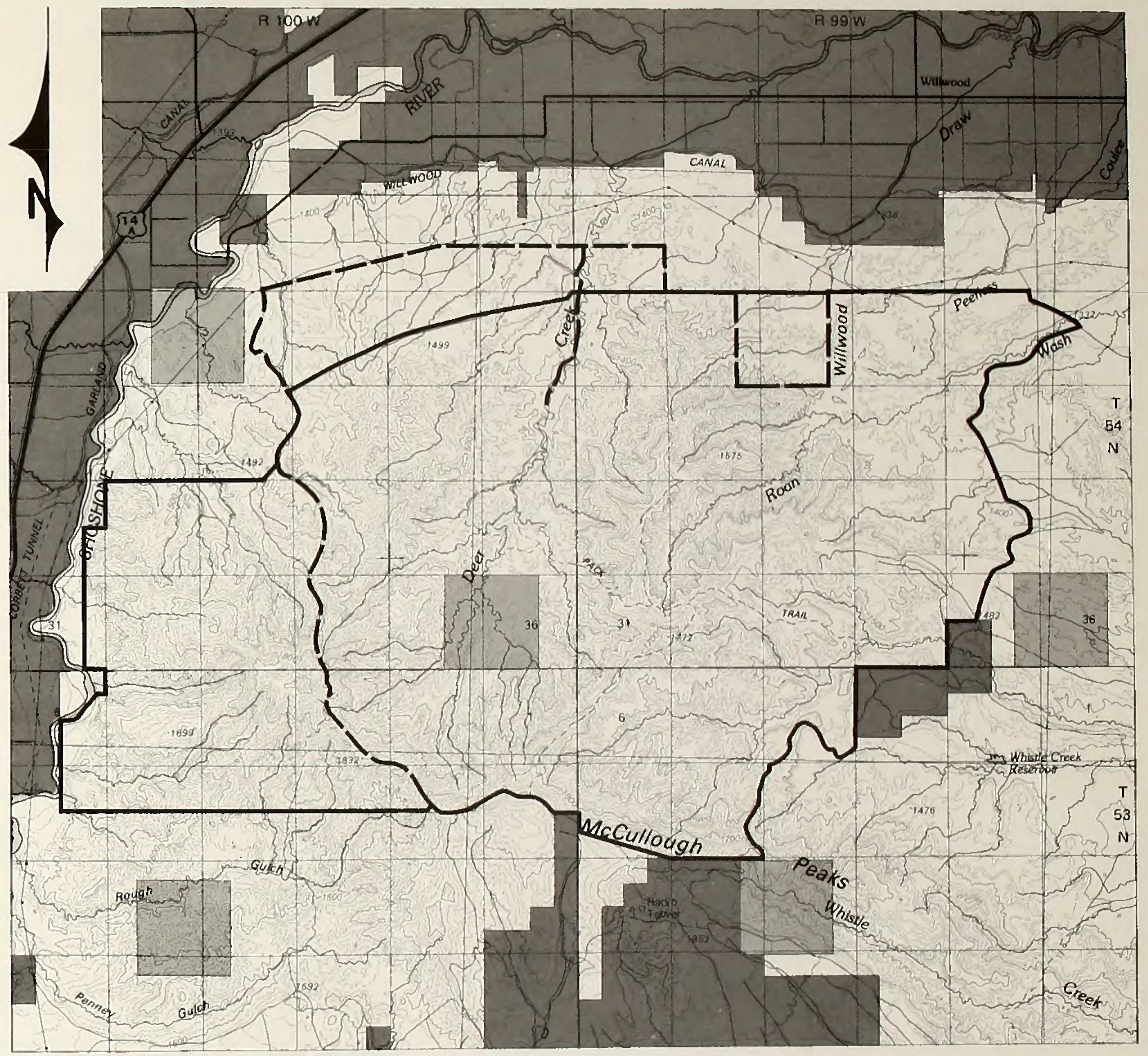
▓ Private Surface Ownership

Scale in Miles

0 1 2 3 4 5

Contour Interval 20 Meters

Map II–4
McCullough Peaks WY-010-335
Conflict Reduction Alternative



━━ Alternative Designation Boundary

━ ━ Wilderness Study Area Boundary

☐ Federal Surface Ownership

▒ State Surface Ownership

▓ Private Surface Ownership

Scale in Miles

0 1 2 3 4 5

Contour Interval 20 Meters

Map II–4
McCullough Peaks WY-010-335
Wilderness Manageability Alternative

nature, with the imprint of man's work substantially unnoticeable," their natural ecosystems have been modified by 100 years of livestock grazing. They would contribute little as representative natural systems, if included in the wilderness system.

5. The potential for oil and gas production has been rated as being at least "moderately high" in all the WSAs. Because of the geology of these areas, the only way to adequately test this potential is to conduct drilling operations.
6. Public support for designation of these WSAs has been quite limited and has been equaled or exceeded by public opposition.
7. Cherry-stem roads, inholdings of state land or state mineral rights, and development adjacent to the WSAs would make it impossible to insure maintenance of wilderness values area wide under the All Wilderness Alternatives. The conflict Reduction and Wilderness Manageability Alternatives are intended to reduce these problems, but the success of these alternatives would depend on obtaining the state lands or rights. Existing mineral and grazing leases on these state lands and rights could complicate obtaining those lands or could frustrate the intention to prevent development that would degrade wilderness values.

A full statement of the rationale for selection of the proposed action is contained in the Grass Creek Management Framework Plan or the Cody Wilderness Management Framework Plan Amendment. These documents are available in the BLM Worland District Office. These proposed actions are preliminary and are subject to change based on the results of this EIS, public comments, and administrative review.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Other alternatives were considered in previous phases of the study process which have not been brought forward for detailed consideration in this EIS. These alternatives and the reasons for not pursuing them are discussed briefly below.

The possibility of designating other public lands in the Grass Creek and Cody Resource Areas was considered in the inventory phase of the study. The areas identified as WSAs were the only areas that met the criterion of possessing basic wilderness characteristics.

The planning phase of the process considered ways that the WSAs could be modified to reduce conflicts or enhance wilderness manageability. The alternatives addressed in this EIS resulted from that analysis. While many boundary modifications would be theoretically possible, the options that were brought forward are those which would significantly reduce conflicts and/or enhance manageability and would also produce a boundary that would be identified easily on the ground. Only in the case of the McCullough Peaks Wilderness Manageability Alternative was it necessary to use legal subdivision boundaries to any extent. Reasonsfor rejecting other potential alternatives generally included one or more of the following:

1. Would result in an unmanageable boundary,
2. Would not significantly enhance manageability of the area or reduce conflicts with other resource uses as compared with the existing WSA,
3. Would unnecessarily exclude lands having wilderness character,
4. Would include a substantial area that does not have wilderness character in a designation.

The Grass Creek Management Framework Plan, which addressed the question of possible wilderness designation for the WSAs in that resource area, also considered a variety of nonwilderness management options for the lands included in this EIS. These options ranged from those that would have emphasized resource development to those that would have emphasized protection of natural values (this plan may be reviewed at the Grass Creek Resource Area office). The management approach selected by the plan and evaluated in this EIS (as it relates to the question of wilderness designation) allows for resource production but imposes restrictions to mitigate impacts on natural values.

The Cody Resource Area wilderness amendment to the Clarks Fork-Shoshone Management Framework Plan addressed only the alternatives of continuing theexisting management program or recommending wilderness designation. Other possible nonwilderness management strategies will be evaluated in a complete resource management plan revision which will begin in 1985 and be completed in 1988.

Bobcat Draw Badlands WSA

MANAGEABILITY

One of the key questions that must be considered in evaluating the suitability of an area for wilderness designation is whether it is capable of being managed effectively to protect its wilderness character. The manageability of the areas considered by this EIS has been evaluated based on the wilderness value of each area described in Chapter III, and the impacts on wilderness values discussed in Chapter IV. Each area is considered to be manageable as wilderness under all the alternatives except for the No Wilderness Alternative. However, substantial portions of the Bobcat Draw Badlands, Sheep Mountain, and McCullough Peaks WSAs would not be capable of being managed to protect wilderness character under the All Wilderness Alternative because of the presence of state land or mineral right inholdings and the access rights associated with those inholdings. The topography and relatively small area of the Red Butte WSA would make it impossible to assure protection of opportunities for solitude and primitive recreation on a substantial portion of that area under any alternative.

SUMMARY IMPACT COMPARISON OF ALTERNATIVES

The following table (Table II-2) provides a summary of the cumulative impacts of the four alternatives on the resource values and uses of the four study areas combined. The summary statement at the beginning of this EIS provides an area-by-area summary of the affects of each alternative on resource values and uses. Table IV-1 displays for each area the adverse impacts, short and long term productivity effects, and irreversible or irretrievable resource commitments expected from each alternative.

TABLE II-2

COMPARATIVE ANALYSIS OF CUMULATIVE IMPACTS OF ALTERNATIVES

Resource	No Wilderness Alternative	All Wilderness Alternative	Conflict Reduction Alternative*	Wilderness Manageability Alternative
Wilderness	Wilderness values lost on most or all of 74,840 WSA acres plus approximately 14,170 acres of potential add-on lands.	74,840 acres designated as wilderness, but inholdings and other manageability problems could cause wilderness values to be lost on substantial portions of the designated areas.	Wilderness values protected on 66,910 acres designated as wilderness.	Wilderness values protected on 86,080 acres designated as wilderness.
Recreation	Potential improvement of access for vehicle-based use. Potential for the wildlife and scenic recreation resource base to be degraded.	Wildlife and scenic resource base mostly protected. Vehicle use restrictions would have negligible effect.	Wildlife and scenic resource base protected on designated lands. Vehicle use restrictions would have negligible effect.	Wildlife and scenic resource base protected on designated lands. Slight loss in vehicle-based opportunities, but demand could be met elsewhere.
Visual	Visual resource values degraded in the long term.	Wilderness designation would protect visual resources, except that access and development on inholdings and excluded lands could degrade visual values.	Wilderness designation would protect visual resources.	Wilderness designation would protect visual resources.
Watershed	Oil and gas activity and ORV use could cause increased soil erosion and compaction. Increased sediment loads and saline discharges could degrade water quality.	Watershed values protected on lands designated as wilderness, except where activity on, or access to, inholdings caused impacts like those projected for the No Wilderness Alternative.	Watershed values protected on lands designated as wilderness. Impacts on excluded lands would be the same as under the No Wilderness Alternative.	Watershed values protected on lands designated as wilderness.

TABLE II-2 (Continued)

COMPARATIVE ANALYSIS OF CUMULATIVE IMPACTS OF ALTERNATIVES

Resource	No Wilderness Alternative	All Wilderness Alternative	Conflict Reduction Alternative*	Wilderness Manageability Alternative
Livestock Grazing	Slight possibility that increased access would facilitate stock management. Possibility of conflict between grazing use and intensive oil and gas operations.	Slight inconvenience for stock management due to motorized vehicle use restrictions.	Slight inconvenience for stock management due to motorized vehicle use restrictions.	Moderate inconvenience for stock management due to motorized vehicle use restrictions.
Wildlife	Oil and gas development and increased access could degrade habitat and cause localized disturbance and population displacement. Potential reduction in furbearer populations.	Wildlife values protected on portions of designated areas not affected by activity on inholdings or excluded lands.	Wildlife values protected on designated areas. Affects on areas not designated wuld be the same as projected for the No Wilderness Alternative.	Wildlife values protected on designated areas.
Minerals	Oil and gas leasing, exploration and development could proceed. The production, if any, that might occur cannot be estimated.	Wilderness designation would preclude oil and activity on designated lands. Activity could take place on inholdings. Some production of oil or gas resources might be achieved by drainage to wells on inholdings or outside areas.	Wilderness designation would preclude oil and gas activity on designated lands. Excluded lands open to development. Some production might be achieved by drainage.	Wilderness designation would preclude oil and gas activity on designated lands. Some production might be achieved by drainage.

TABLE II-2 (Continued)

COMPARATIVE ANALYSIS OF CUMULATIVE IMPACTS OF ALTERNATIVES

Resource	No Wilderness Alternative	All Wilderness Alternative	Conflict Reduction Alternative*	Wilderness Manageability Alternative
Paleontology	Surface disturbing activity could destroy sites. Improved access could increase unauthorized collecting.	Wilderness designation would protect values on included lands except where access is developed to inholdings.	Wilderness designation would protect values on designated lands.	Wilderness designation would protect values on designated lands.
Realty and Access	No Effect	Access required to inholdings would be provided. No effects on state or private land outside the designated areas.	Approximately 1,920 acres of state land and 1,280 acres of state mineral estate would be acquired. No effects on state or private land outside the designated areas.	Approximately 1,920 acres of state land and 1,280 acres of state mineral estate would be acquired. No effects on state or private land outside the designated areas.
Social & Economic Values	The opportunity to include the ecosystems of these WSAs in the National Wilderness Preservation System would be foregone. Opportunities to obtain primitive recreation and solitude experiences would be lost.	A minor loss of employment, income and the tax revenue would not be significant in the local economy. Wilderness based opportunities would be preserved on most lands designated as wilderness.	A minor loss of employment, income, and tax revenue would not be significant in the local economy. Wilderness based opportunities would be preserved on designations.	A minor loss of employment, income, and tax revenue would not be significant in the local economy. Wilderness-based opportunities would be preserved on designations.

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*Because there is not Conflict Reduction Alternative for Red Butte, the Wilderness Manageability Alternative for Red Butte was utlized in developing the cumulative Conflict Reduction Alternative.

CHAPTER III

AFFECTED ENVIRONMENT

This chapter briefly describes the environment of the areas that would be affected by the actions under consideration in this EIS. Lands within the four WSAs and other lands that would be affected by any of the alternatives are the focus of this discussion. The socioeconomic characteristics of the local communities that potentially could be affected are also identified.

In this chapter's discussions, the general term "study area" will be used to refer to all the lands included in any of the alternatives under consideration. The term "wilderness study area (or WSA)" will refer to only the area formally identified in the inventory phase of the wilderness review process. In each case, the WSA is the area covered by the All Wilderness Alternative.

REGIONAL SETTING

GEOGRAPHIC SETTING

The four study areas under consideration in this EIS are located in the western portion of Wyoming's Bighorn Basin. The basin is situated in the northcentral portion of the state between the Bighorn Mountains on the east and the Absaroka Range and Yellowstone Plateau on the west.

The characteristic setting in the Basin is one of grasslands and cold-desert badlands with cultivated areas where irrigation water is available. Precipitation is scarce, ranging from less than six inches per year in the central basin to more than 15 inches at higher elevations around the basin rim. The Bighorn, Greybull, and Shoshone Rivers are the major drainages. The primary natural vegetative types include saltbush shrub, sagebrush-grassland, juniper-grassland, and barrens (badlands).

SOCIAL AND ECONOMIC CONDITIONS

The basin is divided politically into four counties: Big Horn, Park, Hot Springs, and Washakie. The four counties encompass an area of approximately 12,700 square miles, nearly 13 percent of the land area of the state of Wyoming. Roughly 68 percent of the region's land is owned by the Federal Government (39 percent is administered by the Bureau of Land Management). The four WSAs considered in this EIS constitute one percent of the land area of the basin and 2 4/10 percent of the public land administered by the Bureau of Land Management, Worland District.

The population of the Bighorn Basin according to the 1980 census totals 48,741. Two-thirds of the population resides in approximately a dozen small towns scattered throughout the basin. The four largest communities are Cody (population 6,790), Worland (6,391), Powell (5,310), and Thermopolis (3,852).

During the 1970s, population in the basin increased by 20 percent. The population of the state of Wyoming, by way of contrast, grew 41 percent during the same period. The more modest figure prevailing in the Bighorn Basin reflects the fact that basin communities have not experienced the rapid "boom town" growth that has taken place in some parts of the state.

In 1980 the services sector (health, education, others) accounted for 19 percent of Bighorn Basin employment, the government sector 17 percent, mineral industry 11 percent, retail trade nine percent, lodging-eating-drinking establishments eight percent, and agriculture eight percent. The mineral sector, particularly the oil and gas industry, is more dominant in the basin's economy than these employment figures would suggest. In 1980 the basin produced 36 percent of the oil and five percent of the gas produced in Wyoming. This production accounted for 77 percent of the region's export income. Taxes on oil and gas property and production are a major source of revenue for state and local government. In Park County, for example, approximately three-fourths of the tax valuation is provided by companies involved in oil and gas production. A severance tax on oil and gas is assessed by the state at a rate of six percent of the value of the products extracted. Half of this revenue is returned to local government. While they do not begin to compete with the mineral sector, the agriculture and tourism industries are also significant sources of regional income.

ATTITUDES TOWARD WILDERNESS

A number of attitude surveys conducted during the last few years have examined the attitudes of Wyoming residents toward wilderness designation. The results obtained by these surveys have been reasonably consistent. They indicate that slightly more than half of those responding believe that there is already enough or too much designated wilderness in the state, and do not favor designation of any additional acreage. A substantial minority would be willing to see some additional designations, while perhaps 10 to 15 percent favor designating as much area as possible. The studies also reveal, however, a number of misconceptions about wilderness that could have affected these attitudes. For example, respondents commonly believed that grazing would be prohibited and that there could be no management of wild horses, wildlife, or other resources in wilderness areas. It is difficult to say what attitudes toward designation would be if these misconceptions were corrected.

It would be wrong to conclude from the surveys that Wyoming residents are against the protection of wilderness values. The public input received in response to a proposal to issue oil and gas leases and allow exploration in the Washakie Wilderness Area (located in the Shoshone National Forest immediately west of the Bighorn Basin) provides dramatic evidence to the contrary. Out of 386 Wyoming resident responses, 372 opposed allowing any leasing or exploration in the wilderness area. On the local level, only 5 out of 233 responses received from Park County residents favored opening the Washakie Wilderness to oil and gas leasing or exploration.

Attitudes of Bighorn Basin residents toward designation for the WSAs covered by this EIS have been revealed by public involvement opportunities during the inventory and planning phases of the wilderness study. Apparently most residents don't have strong opinions about designation of these areas. At least, few have responded to several widely publicized public involvement opportunties. Those who have commented have been fairly evenly split on their views regarding designation. (These comments and the BLM analysis of them are available for review at the Worland District Office.)

Most comments received from outside the Bighorn Basin have come from the oil industry and have expressed opposition to designation based on potential oil and gas values. Comments have been received from several regional and national environmental or wilderness organizations in support of wilderness designation. Generally, the comments received from individuals residing outside the Bighorn Basin have favored wilderness designation.

REGIONAL WILDERNESS OPPORTUNITIES

Opportunities to experience wilderness are readily available to residents of the Bighorn Basin and adjacent population centers. Within a 200 mile radius of the town of Cody, there are more than 3 million acres of designated wilderness including the Washakie, Absaroka-Beartooth, Teton, Fitzpatrick, and Bridger Wilderness Areas. Within the same distance, another 3 1/10 million acres have been recommended by the managing agency for wilderness designation. This acreage includes nearly 2 million acres in Yellowstone National Park as well as the Cloud Peak Primitive Area in the Bighorn Mountains. There are two population centers (Standard Metropolitan Statistical Areas) within a day's driving time of the WSAs considered in this EIS. These centers are Billings, Montana, and Casper, Wyoming. Within a day's drive of Billings, there are at least 2 7/10 million acres of designated wilderness and 3 million acres of administratively endorsed study areas. Casper has 1 7/10 million acres of designated wilderness within a day's drive and 8/10 million acres of administratively endorsed areas. In addition to indicating that wilderness opportunities are readily available to region residents, these figures make it clear that designating additional wilderness areas in the Bighorn Basin would not contribute to balancing the geographic distribution of wilderness in the state, the surrounding region, or the nation.

RELATIONSHIPS TO OTHER PROGRAMS/PLANS

The four study areas considered in this EIS are located in the following three counties.

Big Horn: Sheep Mountain, Red Butte, and a small portion of the Bobcat Draw Badlands

Washakie: Most of the Bobcat Draw Badlands

Park: McCullough Peaks

These counties, along with Hot Springs County, have been contacted during the inventory and planning phases of the wilderness study and have indicated that there are no specific plans, programs, or county policies that relate directly to the question of wilderness designation. Individual local government representatives have expressed reservations about the value of these areas as wilderness.

The only state government plans that relate to the four study areas are the 208 program water quality management plans. These plans call for actions which would improve existing water quality in the Bighorn River drainage and also identify measures needed to prevent additional degradation of water quality caused by land use actions. Generally, wilderness designation would be consistent with these plans in that wilderness management would preclude activities that might degrade water quality, but designation would also preclude the development of watershed management facilities or mechanical treatments designed to improve water quality.

Wyoming state law poses a potential conflict with wilderness management because of the presence of state lands or state mineral estate inholdings in these areas. The state of Wyoming Act of Admission requires that state lands be used to obtain income for schools and other state institutions and that they be managed so as to secure the maximum income which can reasonably be realized. An April 13, 1982, letter signed by the Governor sums up the state's position on state lands and wilderness as follows:

> "I cannot envision a situation in which wilderness management of state lands would meet the state's trust obligation. Therefore, I request that the BLM initiate and diligently pursue state/federal land exchange opportunities for those wilderness study areas which contain state lands. Exchange actions should be initiated wherever a state ownership interest occurs, be it surface estate, mineral estate, or both. state land sections immediately adjacent to wilderness study areas should also be examined for exchange if wilderness designation would adversely impact their use or management."

Obviously, the land exchange approach would be the most reasonable approach to solving the state's need to derive income from its lands. It would also serve BLM's need to protect wilderness values on areas recommended for designation. In some cases, however, existing mineral and/or grazing leases on the state lands could complicate the exchange process.

Up to this point, contacts with other federal agencies have not identified any interrelationships with the programs of those agencies. Consultations with the U.S. Fish and Wildlife Service required by Section 7 of the Endangered Species Act are in progress.

UNAFFECTED ASPECTS OF THE ENVIRONMENT

The following elements were analyzed to determine whether any of the alternatives addressed by this EIS would have an impact on them.

1. Areas of Critical Environmental Concern
2. Forestry
3. Air quality
4. Climate
5. Cultural resources
6. Wild horses
7. Designated or potential Wild and Scenic Rivers
8. Floodplains, wetlands, prime or unique farmlands
9. Prime or sole source drinking water

Most of these elements do not exist within any of the areas under consideration. Limited cultural resources are present, but cultural resource clearance procedures insure that sites are identified and either avoided or salvaged before any development or surface disturbing activities are allowed to take place. These procedures would protect cultural resources almost as well under nonwilderness management as would the development restrictions resulting from wilderness designation. For this reason it is expected that wilderness designation or nondesignation would have no significant effect on cultural resources. Wild horses are also present in the WSAs, but preliminary horse management plans call for substantial herd reductions in two WSAs and complete removal from the other two. Wilderness designation or nondesignation would not affect these management plans and should have no significant direct impacts on the horses.

Because the values listed above are either not present or will not be significantly affected, they will not be analyzed further in this EIS.

AREA BY AREA DESCRIPTION OF THE ENVIRONMENT

The remaining sections of this chapter describe the environment of each study area in terms of the affected resource values and uses. While these area-by-area descriptions become repetitive in some cases, separate coverage of each area is needed to allow areas to be considered individually in the reporting phase of the study process.

BOBCAT DRAW BADLANDS (WY-010-126)

The Bobcat Draw Badlands WSA is located about 24 miles WNW of Worland, Wyoming in the Fifteenmile Creek drainage. This portion of the Bighorn Basin is characterized by rolling grasslands and broken cold-desert badlands.

Wilderness Values

Naturalness. The southwestern corner of the WSA is dominated by long, flat-topped, grassland ridges or plateaus that extend fingerlike between badland breaks and drainages. The most striking feature of the area is the rugged badland terrain separating these ridges from the drainage bottoms. The action of wind and water on layers of soft clayey sandstone and ancient volcanic ash interspersed between erosion resistant rock and shale layers has cut a maze of deep narrow draws leaving jagged angular ridges. Badland features such as hoodoos and mushrooms jut up from silted bottoms and eroded pockets throughout the landscape. These badland breaks give way to flat drainage bottoms near the eastern and northern edges of the area, but even this flatter terrain is interrupted by badland hillocks and interesting erosional features.

The southernmost of the two tracts that would be added to the existing WSA under the Conflict Reduction Alternative is situated partially on one of the high plateaus, but its southeastern portion drops into the badland breaks of the upper Timber Creek drainage. The other tract consists mostly of steep badland terrain. Paradise Alley, which would be included in the unit under the Wilderness Manageability Alternative, contains all of the landscape types found in the existing WSA.

Man-made intrusions in the Bobcat Draw Badlands WSA are minor and do not have a significant effect on the natural character of the area. These intrusions consist of vehicle trails, cherry-stem roads, and livestock reservoirs.

Bobcat Draw Badlands WSA

A number of vehicle trails are present in the area. Most of these were bladed once during seismograph testing operations; and, while some continue to receive occasional use for livestock management, most are abandoned. None receive regular maintenance. The impact of these trails on wilderness character is minimal because they are widely dispersed and because erosion and revegetation are returning them to a natural appearing condition. The cherry-stem roads, which technically are excluded from the WSA, also have little impact. These routes were classified as roads during the inventory because they were constructed and continue to be maintained and used to provide access for livestock management. With one exception, these roads are short and are located close to the area's external boundaries. In all cases, their level of construction and amount of use are minimal.

Ten livestock reservoirs are located within the WSA. Only six of these hold water; the others are washed out. These reservoirs are all quite small, the earthwork done to construct them blends in with natural landforms, and revegetation has taken place without the development of obviously unnatural species. A final factor limiting the impact of these reservoirs on natural character is that all are situated within one-half mile of the WSA boundary.

The lands that would be added to the existing WSA under the Conflict Reduction and Wilderness Manageability Alternatives also show few effects of man's activity. The tracts included in the Conflict Reduction Alternative have a cherry-stem road segment, a section of vehicle trail, and an abandoned, revegetated oil and gas drill site. The Paradise Alley lands have only two small livestock reservoirs and segments of abandoned vehicle trail. The road that separates Paradise Alley from the existing WSA is virtually identical in appearance to many of the vehicle trails in the WSA. This route was classified as a road during the inventory because it had been constructed at one time and public input was received to the effect that it was still being maintained and used. In the four years since the inventory, this route has not been maintained, and it is passable only with extreme difficulty.

In conclusion, the study area lands generally appear to have been affected primarily by the forces of nature; the imprint of man is minimal.

Solitude. The study area is located approximately 10 road miles from the nearest paved highway, and a high clearance and/or four wheel drive vehicle is needed on the routes leading to the area. Human activity in the general vicinity of the study area is quite limited, consisting mostly of livestock grazing and oil and gas exploration. The level of these activities is such that it is unusual to meet another vehicle on any of the routes leading to the area.

Within the WSA (and its potential additions), the badland topography substantially enhances opportunities for solitude in two ways. First, the multitude of narrow winding drainages separated by steep ridges provides excellent visual screening and imparts a strong sense of seclusion. Users could be quite close together in terms of distance, and yet be unaware of each other's presence. Secondly, this badland topography would tend to distribute use over the area and prevent the impacts on solitude that occur when use concentrates in a particular location.

Primitive Recreation. The recreation setting provided by the WSA was evaluated using the bureau's Recreation Opportunity Spectrum (ROS) system. This system classifies the recreation opportunity that lands are able to provide on a scale that extends from urban opportunities at one extreme to primitive opportunities on the other end of the scale. (Appendix C provides additional information on the ROS classification system.)

The ROS evaluation of the study area classified the entire area as presently being either Semi-Primitive Nonmotorized or Semi-Primitive Motorized (Table III-1). The nonmotorized class is located in the central core of the study area while the motorized lands are those located on the periphery near boundary roads where most of the evidence of man's activity is concentrated. This pattern of ROS classes is typical of what would be expected on a study area of this size in a desert setting.

TABLE III-1

BOBCAT DRAW BADLANDS ROS CLASSES

	Acres by Alternative Land Area*		
Existing ROS Class	**All Wilderness**	**Conflict Reduction**	**Wilderness Manageability**
Semi-Primitive Motorized	9,510	10,275	13,515
Semi-Primitive Nonmotorized	7,640	8,265	8,925

*Opportunities that presently exist on the lands covered by each alternative, **not** what would result under wilderness management.

Bobcat Draw Badlands WSA

The WSA's most significant attribute in terms of its ability to provide opportunities for specific recreation activities is the unique character of its badlands. Badlands are a common feature of the Bighorn Basin landscape, but the badland topography of this area is unique. This uniqueness results from the presence of relatively hard, erosion-resistant rock layers spaced every few feet between layers of extremely soft erodible material. Weathering of these layers has created a "devil's garden" of arches, gobblins, hoodoos, mushrooms, castles, and other fantastic or fanciful features. The effect is enhanced by bands of sharply contrasting soil and rock colors.

Opportunities to enjoy this setting are the factor that draws people to the study area to participate in a variety of activities including: hiking, sightseeing, horseback riding, rock collecting, and photography. Hunting for mule deer and antelope is good, with the difficulty of access tending to enhance the opportunities for trophy animals. Game bird hunting and hunting or trapping of furbearers are available. The opportunity to observe wild horses is also present.

Wilderness System Diversity. One objective of the wilderness system is to preserve representative examples of natural ecosystems. The Bailey-Kuchler Ecosystems classification of the United States (Bailey 1976 and Kuchler 1966) classifies the study area as a combination of wheatgrass-needlegrass shrubsteppe, saltbush-greasewood, and sagebrush steppe vegetation classes within the Wyoming Basin Province Ecoregion. No ecosystem in the Wyoming Basin Ecoregion has been included in the wilderness system or recommended to Congress for wilderness designation.

Recreation

The primary recreation use seasons are late spring, early summer, and fall. High temperatures in late summer discourage use during that period. Motorized recreation is the rule, with most such use taking place along the study area boundary and cherry-stem roads. Visitors often leave their vehicles at these access points and walk or ride horseback into the study area to engage in activities, such as hunting, sightseeing and exploring in the badlands, and rock hounding. Because of the area's remoteness and the highly dispersed type of visitor use that it receives, it has not been practical to attempt to collect use data for the area, but present use is believed to be no more than a few hundred visitor days per year.

Paradise Alley, potential addition to Bobcat Draw Badlands Area

The lands that would be added to the WSA under the Conflict Reduction or Wilderness Manageability Alternatives offer the same opportunities and receive essentially the same use as areas within the WSA. It should be noted that Paradise Alley, which would be recommended for inclusion under the Wilderness Manageability Alternative, contains some of the most spectacular of the badland features.

Visual Resources

The colorful, spectacular badlands landforms and features of this study area combined with its generally natural character, cause it to rate as "A quality" scenery under the BLM Visual Resource Management system. This rating results in the area being placed in a Visual Resource Management Class II. Under this classification substantial efforts are made and visual design techniques are used to minimize the impact of activities on scenic resources. (BLM Manual 8411 provides a full discussion of the Visual Resource Management System.)

Watershed

The Bobcat Draw Badlands study area consists of six major soil associations and complexes. These soils are generally well drained. They include large areas of shallow, saline soils; small areas of moderately deep, loamy soils; and very small areas of deep, saline soils. These soils have a naturally high rate of erosion and are very difficult to stabilize after disturbance.

The study area lies in the 5-9 inch precipitation zone, receiving the majority of its moisture in the form of rain during summer thunderstorms. The area is primarily drained by Bobcat Draw and Timber Creek, ephemeral tributaries of Fifteenmile Creek, a tributary of the Bighorn River. Sediment from erosion during runoff events is the most serious water quality problem in the Fifteenmile drainage. State of Wyoming and Bighorn Basin 208 water quality management plans identify sediment yields in Fifteenmile Creek as a major source of water quality problems in the Bighorn drainage. These plans note that sediment serves as a transport mechanism for nutrients and pesticides, increases municipal water treatment costs, degrades fishery resources, damages crops and irrigation facilities, reduces reservoir storage, and degrades aesthetic and recreation values. Salinity from natural sources and oil and gas treatment water discharges is a second major point of concern in these water quality plans. Salinity in Bighorn drainage waters increases municipal water treatment costs and reduces crop yields.

The physical characteristics and water bearing properties of the Willwood Formation limit the occurrence of groundwater in the study area. Water yields are primarily a function of the sandstone content that can be penetrated, which is highly variable both vertically and laterally. There are no known springs or wells in the study area.

The majority of the study area has been classified as rock outcrop (badlands) range site. This part of the area has very limited vegetation and is unsuitable for grazing due to its lack of vegetation and steep slopes. The high plateaus or ridges are predominantly saline upland range site. The major plant species here include Gardner saltbush, big sagebrush, needle-and-thread, squirrel tail, Indian ricegrass and wheatgrass. The drainage bottoms are predominantly saltbush, greasewood, and big sagebrush with a sparse understory of prickly pear cactus, blue grama, Sandberg bluegrass, and Indian ricegrass.

Livestock Grazing

The lands in the Bobcat Draw Badlands study area include parts of three grazing allotments (Map III-1). These allotments and the associated animal unit months (AUMs) affected by each alternative are listed by Table III-2. The AUMs listed in that table are the total apportioned capacity; actual licensed use in recent years has been well below this capacity figure. In fact, during the last several years, the livestock operator holding Allotment 1070 (which makes up 66 percent of the land area of the WSA) has not owned sheep and has not grazed this area. In the last year, the Allotment 0604 operator has sold his sheep and taken nonuse on the portion of his allotment which lies within the WSA (22 percent of the WSA is in this allotment). At the present time, in other words, only 12 percent of the WSA is being grazed, and none of the lands that would be added under the Conflict Reduction and Wilderness Manageability Alternatives are receiving use. Most of the study area lands are not suited for cattle grazing, and cattle use would raise conflicts with wild horses. This leaves the future of livestock grazing on these lands uncertain regardless of what happens on wilderness designation.

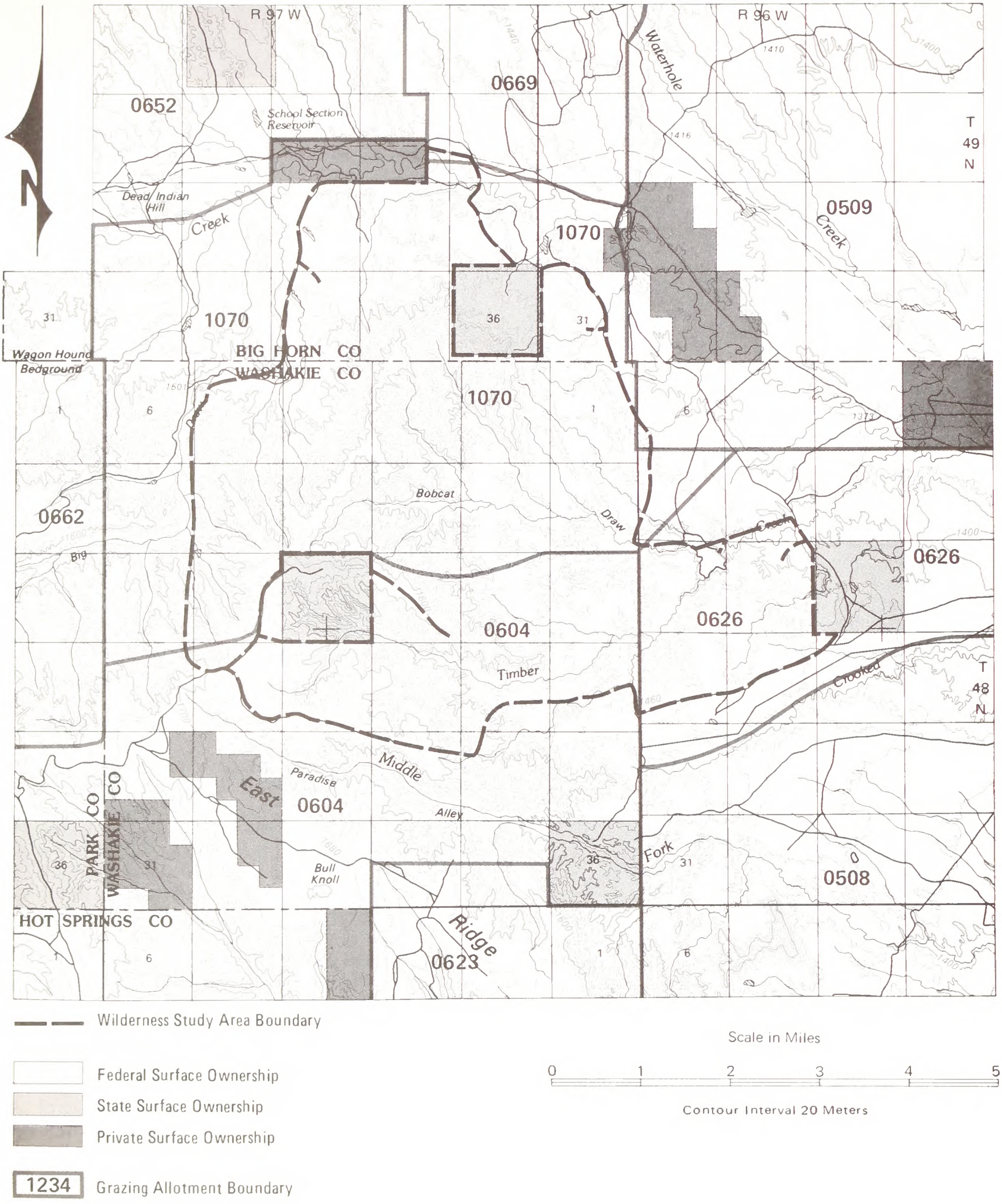
Access for grazing purposes is available on the cherry-stem roads and vehicle trails in the study area as well as on its boundary roads. There is a long history of use (but no present use) of the cherry-stem road in sections 15, 16, and 17, T. 48 N., R. 97 W. for sheep camp and winter feed access. The western half of the boundary road that separates Paradise Alley from the WSA also has received similar use. The functional livestock reservoirs in the study area are critical for livestock, wild horse, and wildlife water (winter use depends heavily on snow for water). Access to these reservoirs for periodic maintenance is required.

The potential for forage improvement in this area is very low. That potential would result from improved control and management of livestock use. No range improvements (with the possible exception of a short section of fence in Paradise Alley) are planned for the WSA or the areas covered by the alternatives.

TABLE III-2

BOBCAT DRAW BADLANDS LIVESTOCK GRAZING ALLOCATIONS

			AUMs by Alternative		
Allotment Number	Season of Use	Class of Livestock	All Wilderness	Conflict Reduction	Wilderness Manageability
0604	Winter	Sheep	264	338	678
0626	Spring-Summer	Cattle	197	197	197
1070	Winter	Sheep	587	596	596



Map III—1
Bobcat Draw Badlands WY-010-126
Grazing Allotments

Wildlife

This study area provides habitat for a wide variety of mammals, birds, reptiles, and amphibians. A list of these species and the habitats used by them is available in the Grass Creek Resource Area office.

Big Game. Pronghorn antelope and mule deer are the two big game species inhabiting the area. Some mountain lion use and rare, short-duration elk use may occur as well. An estimated 130 mule deer occupy the WSA year-round except during severe winters when a portion move out of the WSA to the Fifteenmile Creek drainage bottom. Approximately another 50 deer are resident in Paradise Alley. The population of the mule deer herd unit containing the study area is relatively stable and at present exceeds Wyoming Game and Fish Department goals, but improving access to the general area has increased vulnerability of these deer resulting in restrictions on harvest methods. Antelope are present in the study area yearlong. Their numbers peak at 200 to 250 head during the winter months when their use is largely restricted to the eastern and northern portions of the area.

Game Birds. Sage grouse, chukar partridge, Hungarian partridge, mourning dove, and waterfowl inhabit the study area. Sagebrush benches and drainage bottoms provide habitat used by sage grouse. No sage grouse lek-winter-nesting habitat complexes have been identified, but intensive inventories have not been conducted. Chukar and Hungarian partridge populations are dispersed throughout the area; their numbers fluctuate widely in response to climatic severity. Doves utilize the sagebrush-mixed grass habitats and riparian areas. They are present during the summer and early fall until migration takes them out of the region. Both resident and migrant waterfowl utilize the study area livestock reservoirs.

Nongame Wildlife. Raptors are common in the study area, and the badlands support winter concentrations of golden eagles. Ferruginous hawks, prairie falcons, red tail hawks, kestrels, great horned owls, and rough legged hawks utilize the abundance of prey species (rabbits, mice, etc.). Intensive raptor nest inventories have not been completed in the study area. Bobcats and Coyotes are common in the area. Because of the relative lack of access, trapping has not depleted bobcat populations to the extent that it has on adjacent lands. Migratory shorebirds utilize stock reservoirs, and numerous small bird, mammal, mphibian, and reptile species occur throughout the area.

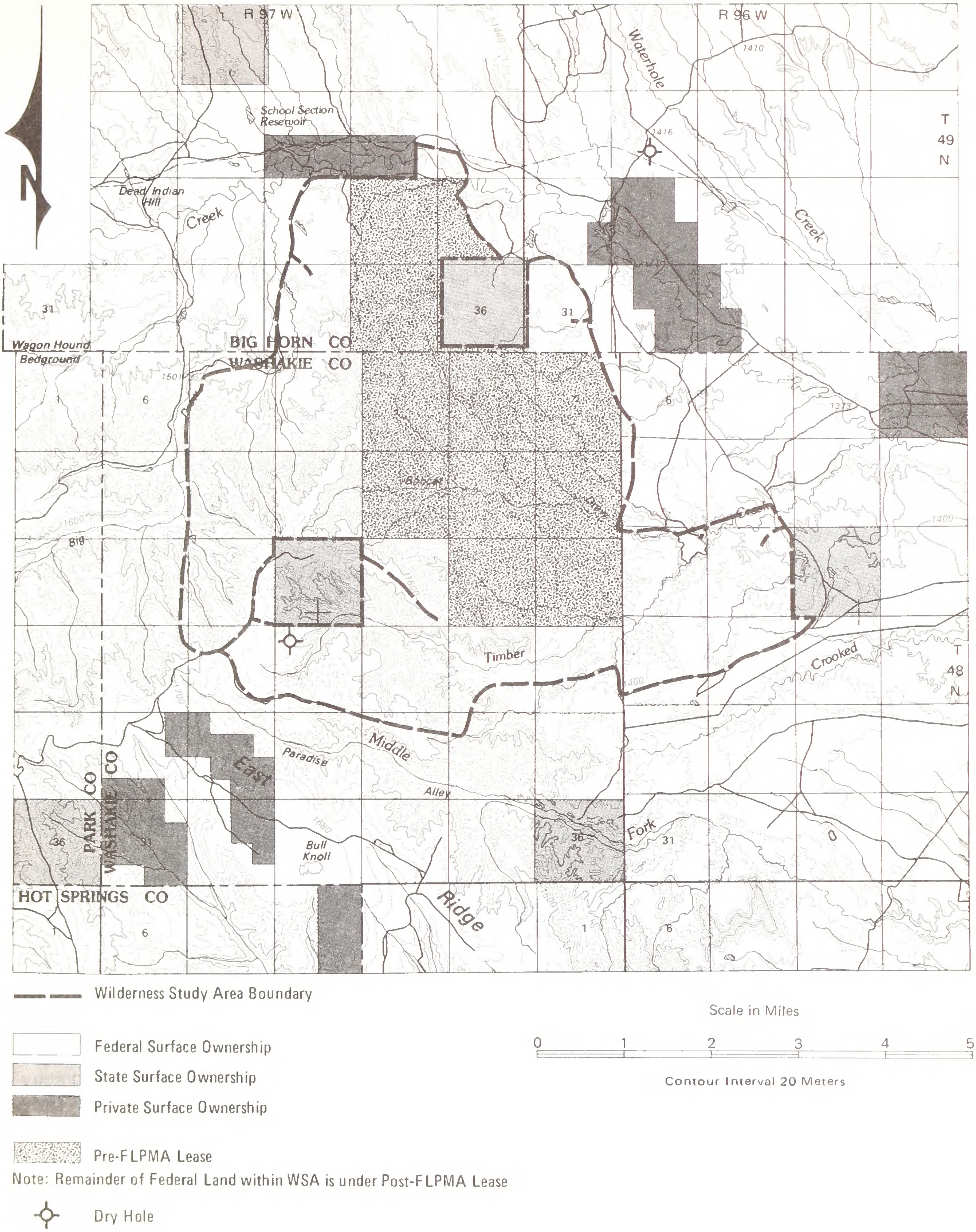
Threatened and Endangered Species. No bald eagle nests, roosts, or wintering areas have been found in the study area. Peregrine falcon habitat is marginal due to the lack of wetlands and avian prey. Prairie dogs do occur in the area, but no evidence exists to indicate the presence of black-footed ferrets.

Geology and Mineral Values

This study area is located near the structurally deepest part of the Bighorn Basin, a typical structural and topographic intermontane basin in the Rocky Mountain Region. At the locality of the study area, about 10,000 feet of Early Tertiary basin-filling sediments overlie locally folded Mesozoic and Paleozoic sedimentary rocks. Outcrops within the study area expose strata belonging to the Eocene Willwood and Tatman Formations. The Tatman Formation, which lies stratigraphically above the Willwood Formation, caps the higher platueaus in the southwestern quarter of the area. The remainder of the study area exposes numerous outcrops of Willwood Formation eroded into a maturely dissected, badlands topography.

The greatest potential for economic mineral deposits within the study area is for oil and gas. Underlying the Tatman and Willwood Formations is a thick sequence of sedimentary rocks including all known oil and gas reservoir horizons ranging from the Paleocene Polecat Bench Formation (Ft. Union) to the Cambrian Flathead sandstone. Recent seismic exploration in the area has delineated the presence of structures conducive to the entrapment of oil and gas beneath the tertiary sediments, but due to the great thickness of the Tertiary Formation, few exploratory wells have been drilled in the immediate area to date (Map III-2). One well, located 3½ miles west of the study area, had an initial gas production of 7,443 MCFGPD (thousand cubic foot of gas per day). This producer, ultimately drilled to a depth of over 23,000 feet, was a reentry of an earlier hole drilled two years before and then abandoned as a dry hole. Two other exploration wells have been drilled in the vicinity, one within the boundaries of the study area (drilled to over 18,000 feet and abandoned as dry) and one drilled about two miles northeast of the study area (drilled to over 16,000 feet and reported as dry but with a show of gas).

The wells that have been drilled to date do not establish the presence or absence of producible oil or gas underlying the study area. Given the type of structures present, it would require drilling several deep wells in the area to resolve this



Map III–2
Bobcat Draw Badlands WY-010-126
Oil and Gas Production and Lease Status

question and to even begin to estimate the size of any reserves that might be present. At this point, all that can be said is that the area has been evaluated by industry, state, and federal geologists as having a "high potential" for oil and gas development.

All the study area lands are included in oil and gas leases. Many of these leases were issued before the passage of FLPMA (Map III-2). These pre-FLPMA leases confer a right to explore and develop the lease regardless of the impact on wilderness values. Leases issued after passage of FLPMA contain a stipulation which allows exploration and development only if wilderness values would not be adversely affected. Oil and gas leases run for ten years but are extended if drilling or production is in progress. Most leases in the study area vicinity lapse after ten years with no activity having occurred. Unless they are extended, all pre-FLPMA leases will lapse on or before September 1, 1986.

There is no known present or past production of minerals within the study area. A check of BLM mining claims recordation lists revealed no mining claims in the area. Under current conditions, potential for coal development is considered low. Formations known to contain economically valuable deposits of coal elsewhere in the Bighorn Basin occur in the subsurface beneath the study area. However, their great depth (at least 4,000 to 5,000 feet) precludes any present economic interest. Other potential economic deposits such as oil shales within Tatman Formation, bentonitic shales within the Willwood Formation, and potential industrial materials such as Zeolites (which may occur in some of the Tertiary Formations) exist in the area with potential for development ranging from low to moderate. This potential is moderated by the availability of higher grade deposits elsewhere, substitutes, and a noncritical market situation.

Paleontological Resources

The Tatman and Willwood Formations in the study area both contain paleontological resources. Fossils are plentiful in the Tatman Formation but are commonly poorly preserved. These fossils consist primarily of vertebrates (fish, crocodiles, turtles) and invertebrates (gastropods, pelecypods, and abundant ostracodes) as well as plant fossils. Environment of deposition for this formation was in part lacustrine.

The Willwood Formation preserves some of the most complete Early Eocene continental vertebrate faunal assemblages known (Gingerich 1980). Upper Willwood vertebrate remains are locally very abundant within the study area boundaries. In addition, invertebrate remains and plant fossils may occur locally.

Realty and Access

Both the surface and the mineral estate of all public lands within the Bobcat Draw Badlands WSA belong to the United States and are administered by the Bureau of Land Management. The state of Wyoming owns both the surface and mineral estates of section 16, T. 48 N., R. 97 W., which is entirely surrounded by WSA lands. Access to this state section is via a cherry-stem road. Most of the lands surrounding the WSA are federal lands, but two state sections and one private parcel form portions of the WSA boundary. One state section forms about a mile of the boundary at the extreme eastern end of the WSA. Another (section 36, T. 49 N., R. 97 W.) near the northern end is nearly surrounded by WSA lands. The private land abuts a little more than a mile of the northernmost boundary of the WSA. Access to these state and private lands does not require crossing any of the WSA.

The Conflict Reduction Alternative would add the state lands and mineral rights in section 16, T. 48 N., R. 97 W. and section 36, T. 49 N., R. 97 W. to the existing WSA. This would involve acquiring those sections from the state. There are state grazing and mineral leases in effect on these sections. The additional lands that would be included under the Wilderness Manageability Alternative are all federal surface and mineral estate. One tract of state land and one of private land would abut part of the revised boundary produced by this alternative, but access to these tracts would not be affected.

SHEEP MOUNTAIN (WY-010-130)

The Sheep Mountain WSA is located approximately 18 miles west of the town of Basin, Wyoming, and a few miles south of the Greybull River. The most prominent topographic features are Sheep Mountain, located in the north-center of the area, and the eastern tip of Tatman Mountain, extending a short distance into the WSA from the western boundary.

Wilderness Values

Naturalness. The area is dominated by the rugged badlands formed by the erosive action of wind and water on the shales and sandstones of the Tertiary Willwood Formation. Sharp ridges and barren hillocks separate innumerable branches of the larger drainages. In some places erosional features, such as hoodoos and spires jut up from eroded slopes or drainage bottoms. Elk Creek, Dorsey Creek, and Dry Cottonwood Creek are the main drainages in the study area; all three head near Sheep or Tatman Mountains and drain toward the southeast.

The upper slopes of Tatman Mountain are the one area of the WSA for which the term "badlands" does not apply. The top of the mountain is a long narrow flat-topped plateau. Rolling grass and sage covered ridges slope downward from this plateau and break into badlands at lower elevations.

The section of split-estate land that would be recommended for designation under the Conflict Reduction and Wilderness Manageability Alternatives, straddles two branches of the Elk Creek drainage and exhibits the badland topography that characterizes the majority of the WSA. The finger of non-WSA land extending into the WSA from the southern boundary that would be added to the area under the Wilderness Manageability Alternative is a broad open drainage bottom, but adjacent badland ridges and breaks give it a badlands character.

Vehicle or seismograph trails, cherry-stem roads, and livestock management facilities are the only man-made intrusions in the study area. These intrusions do not have a significant effect on natural character.

Abandoned vehicle or seismograph exploration trails are scattered through the southern portion of the WSA. There are also small concentrations near the western boundary on the slopes of Tatman Mountain and in the extreme northeast corner of the area. Most of these trails were bladed once during seismic exploration and then abandoned. They are not being maintained and most are impassable. In this badland setting,

Sheep Mountain WSA

erosion quickly washes out drainage crossings and blends any earthwork back into the natural contours. This combines with the wide dispersal of these trails to minimize their impact on natural character.

The impact of the cherry-stem roads also is minimal. The two at the northern end of the study area extend only about ¼ mile into the area and receive very little use. The cherry stem on Tatman Mountain extends into the area about ½ mile; but except at its extreme eastern end, terrain screens it from view. The route into Elk Creek from the Dorsey Creek Road on the eastern boundary extends slightly more than a mile into the study area. It exhibits minimal construction and requires a four-wheel drive vehicle but does continue to receive use for access to livestock reservoirs. The level of use for this purpose amounts to no more than a few days per year.

Fifteen small livestock reservoirs are located within WSA boundaries. Only eight of these are functional; the remainder have been washed out and/or silted in for several years. Eight of the structures, including five that are functional, are located within less than ½ mile of the WSA boundary. These reservoirs are all quite small, most are hidden from view in small drainages, and the earthwork done to construct them blends with natural landforms.

While there are approximately 7½ miles of fence within the WSA, all but one mile is either on the boundary or within ¼ mile of it. Because of this and because fencing does not stand out visually in this landscape, the fencing has little effect on natural character.

The split-estate section, that would be added under the Conflict Reduction and Wilderness Manageability Alternatives, has no significant intrusions on natural character. A half mile of vehicle trail which once ran up the Elk Creek drainage bottom is washed out in a number of places and has revegetated to the point that it is essentially obliterated. A very small reservoir structure in the section is dry, breached, and revegetated.

The finger of non-WSA land, that would be included under the Wilderness Manageability Alternative, has more man-made intrusions than the surrounding lands, but it still presents an essentially natural character. The two parallel roads that created this finger were identified as roads because they had received blade work at one time and continue to be used to provide access to livestock management facilities. These roads are on relatively flat terrain, so they require virtually no maintenance. In appearance they do not differ greatly from the vehicle trails in the

Sheep Mountain WSA

area. Within the finger are two operating livestock reservoirs and several abandoned seismograph trails. The reservoirs are small, and the earthwork has revegetated to the point that they do not create a strong visual contrast. In the relatively flat terrain of these lands, the seismograph trails are nothing more than areas of disturbed vegetation which are rapidly returning to a natural appearance.

Solitude. Opportunities for solitude are generally excellent throughout the study area. The public lands in this portion of the Bighorn Basin typically receive only limited use. Livestock grazing is the only steady use of the lands in the region, and even it is seasonal and does not involve extensive activity. Oil and gas exploration can produce levels of activity incompatible with solitude, but this activity tends to be very site specific or of short duration. In short, solitude is the norm on most of the public lands in this portion of the Bighorn Basin. In the study area, opportunities for solitude become excellent. The ruggedness of the terrain, which has limited grazing and mineral activity, also provides visual screening for any activity that does occur. Additionally, the topography would tend to distribute recreation use. The only place where concentrations of recreation use seem likely are near the summits of Tatman and Sheep Mountains. The area's large size and generally compact configuration are another factor protecting solitude in the northern portion of the study area, but the finger excluded from the WSA creates a potential for activities that could degrade solitude in the southern end.

Primitive Recreation. The recreation setting provided by the study area was evaluated using the Bureau's Recreation Opportunity Spectrum system (Appendix C). The results of this classification are shown in Table III-3. The small area of Roaded Natural class is located in a narrow strip immediately adjacent to the Dorsey Creek Road. Other lands near the study area boundary fall within the Semi-Primitive Motorized class, while the core of the area is classified as Semi-Primitive Nonmotorized. The section of split-estate land classifies as Semi-Primitive Nonmotorized, and the finger of non-WSA land extending from the southern boundary received a Semi-Primitive Motorized classification.

TABLE III-3

SHEEP MOUNTAIN ROS CLASSES

Existing ROS Class	Acres by Alternative Land Area* All Wilderness	Conflict Reduction	Wilderness Manageability
Roaded Natural	415	415	415
Semi-Primitive Motorized	11,360	6,540	12,310
Semi-Primitive Nonmotorized	10,435	7,585	11,075

*Opportunities that presently exist on the lands included under each alternative, **not** what would result under wilderness management.

The study area's large size, rugged topography, and unimpaired natural character provide a resource base for a variety of primitive recreation activities. The complex network of ridges and drainages radiating from Sheep and Tatman Mountains provides many isolated travel routes through the unit for hikers or horsemen. The terrain is not so rugged as to significantly restrict travel, but it does produce an impression of size much larger than the actual acreage of the study area. The eroded, vividly colored badlands are highly scenic and contain pockets of erosional features that add visual diversity. Panoramic views from the upper slopes of Sheep and Tatman Mountains offer a marked contrast to the enclosed views in the lower drainages.

In addition to providing excellent scenic quality, the weathered badlands offer an abundance of opportunities for amateur geologists and rock collectors to pursue their interests. Hunting opportunities for mule deer and game birds are also available.

Wilderness System Diversity. The ecosystems present in the study area are a mixture of wheatgrass-needlegrass shrub steppe, saltbush-greasewood, and sagebrush steppe vegetation classes within the Wyoming Basin Province Ecoregion. No ecosystem in the Wyoming Basin Ecoregion has been included in the wilderness preservation system.

Recreation

Sightseeing, rock collecting, and hunting are the primary recreation uses of the study area at present. Most of this use is vehicle based and occurs near the boundaries of the WSA, relying on the boundary roads and cherry-stems for access. The terrain of the area largely precludes vehicle use off of maintained routes. High temperatures of late summer discourage visits during that period, so most activity takes place in the spring and fall months. Low use levels and highly

Sheep Mountain WSA

dispersed use patterns have made it impractical to attempt to collect use data for the area, but present use is probably no more than a few hundred visitor days per year.

Visual Resources

The natural landscapes of this area (described in the "Naturalness" discussion) have been rated as "B quality" scenery under the BLM Visual Resource Management system and have been assigned a Class III visual management classification. Under this classification, changes to the basic landscape elements of form, line, color, and texture caused by a management activity may be evident but should not dominate the existing landscape.

Watershed

There are four major soil associations present in the Sheep Mountain study area. These soils are saline and mostly shallow. They are well drained, but have a high rate of erosion and are difficult to stabilize and revegetate once disturbed.

Most of the 5 to 9 inches of precipitation received by the study area is in the form of summer thunderstorm rain. Several ephemeral tributaries of the Greybull and Bighorn Rivers drain the area. Sediment from runoff events is the primary water quality problem. High sediment yields contribute to downstream costs and problems relating to municipal and agricultural uses, fisheries, and reservoir siltation. A second problem, salinity, is of concern because of downstream effects on crop yields and municipal water treatment costs. The physical characteristics of the Willwood Formation (interbedded claystone and channel sandstones) limit the occurrence of groundwater. There are no known springs or wells in the area.

The study area is estimated to consist of 80 percent rock outcrop (badlands) range site. Steep slopes combined with low forage production (less than 25 pounds per acre) make this range type unsuitable for grazing. Small areas along drainage bottoms and ridge tops are saline upland and sandy range sites. Vegetation on these sites is predominantly Gardner saltbush, blue grama, cactus, and scattered big sagebrush.

Livestock Grazing

The Sheep Mountain study area includes lands that fall in four grazing allotments (Map III-3). These allotments and the allocated AUMs affected by each alternative are displayed in Table III-4. The AUMs listed in the table are the total apportioned capacity; actual licensed use has been well below this level. The operator on Allotment 0669 has used an average of 87 percent of the apportionment on that allotment over the last three years, but on the other three allotments, licensed use has averaged only 40 percent of the apportionment during the same period. These use levels reflect the actual forage available. Use within the study area boundaries may be even lower than these percentages suggest because other parts of these allotments offer better forage than is available in the study area.

Access for livestock management is provided by the roads which form some of the area boundaries and by the cherry-stem roads. Access to the functional livestock reservoirs in the area is essential to allow for periodic maintenance. Vehicle use for stock management off of existing routes is largely precluded by the terrain. The potential for forage improvement in the area is limited to that which could be achieved by improved control and management of livestock use. The only range improvement planned for the area is some gap fencing to control wild horse use. This fencing would be located close to the western area boundary.

TABLE III-4

SHEEP MOUNTAIN LIVESTOCK GRAZING ALLOCATIONS

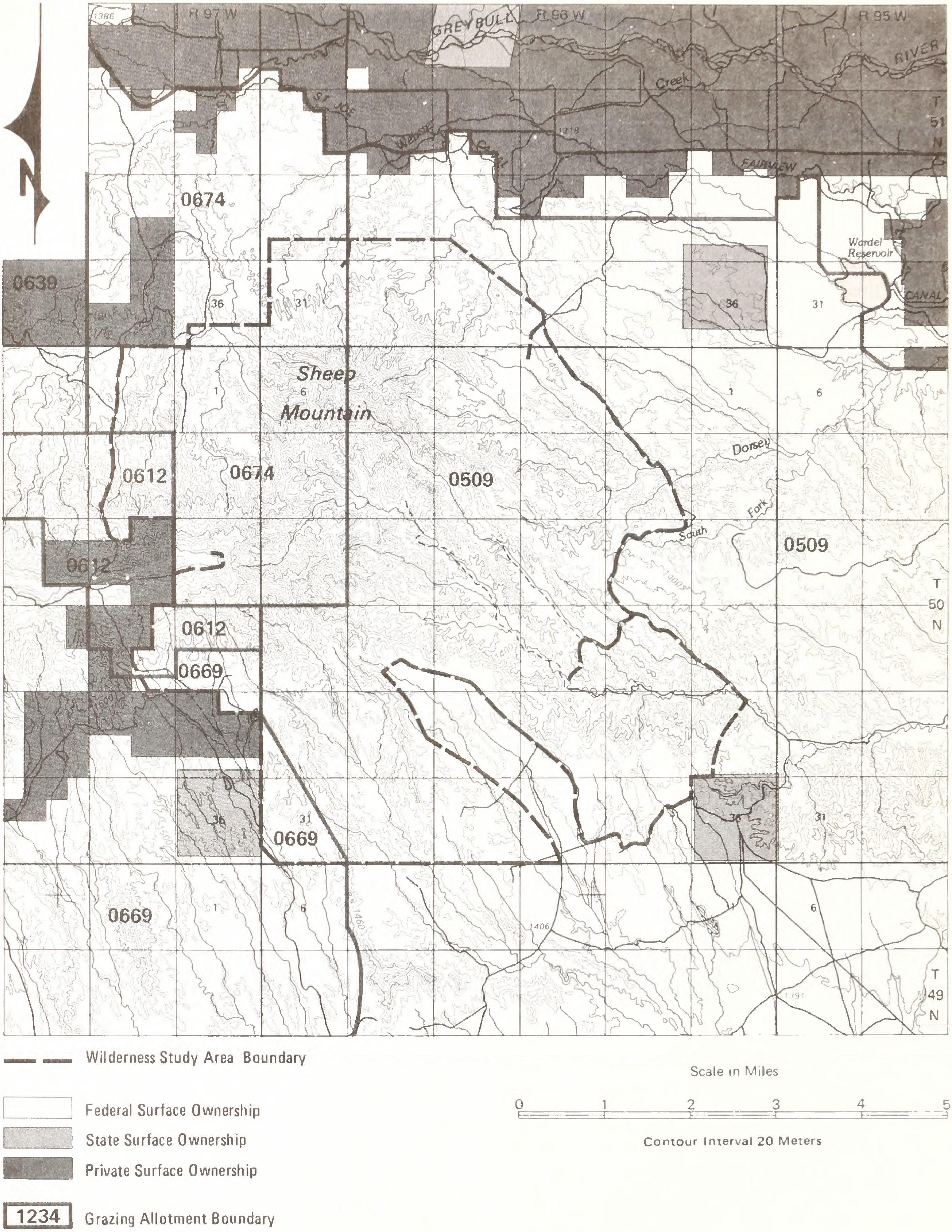
			AUMs by Alternative		
Allotment Number	Season of Use	Class of Livestock	All Wilderness	Conflict Reduction	Wilderness Manageability
0509	Winter Spring-Summer	Sheep Cattle	840	477	958
0612	Spring-Fall	Cattle	111	43	111
0674	Spring-Winter	Sheep	157	157	157

Wildlife

The Sheep Mountain study area provides habitat for a wide variety of mammals, birds, reptiles, and amphibians. A list of these species and their habitats is available in the Grass Creek Resource Area office.

Big Game. Pronghorn antelope and mule deer are the two big game species present. An estimated 125 to 150 mule deer occupy the area year-round except during severe winters when a portion move to sheltered drainage bottoms along the Greybull River and Fifteenmile and Elk Creeks. The population of mule deer in the herd unit containing the study area is relatively stable and at present exceeds Wyoming Game and Fish Department goals. Antelope inhabit the Cottonwood and Dry Creek drainages in the southern end of the study area as well as a narrow strip along the northern boundary during the spring, summer, and fall. The distribution of both deer and antelope in the area during the hot season depends on water availability.

Game Birds. Sage grouse, chukar partridge, Hungarian partridge, mourning dove, and waterfowl inhabit the study area. Sagebrush benches and drainage bottoms provide habitat used by sage grouse. No sage grouse lek-winter-nesting habitat complexes have been identified in the study area, but intensive inventories have not been conducted. Chukar and Hungarian partridge populations are dispersed throughout the area. Numbers of these birds fluctuate widely in response to climatic severity. Doves utilize the sagebrush-mixed-grass habitats and limited wetland (stock reservoir) areas. They are present during the summer and early fall until migration takes them out of the region. Waterfowl, both resident and migrant, utilize the study area livestock reservoirs.



Map III–3
Sheep Mountain WY-010-130
Grazing Allotments

Nongame Wildlife. Raptors are common in the study area, and the badlands support winter concentrations of golden eagles. Ferruginous hawks, prairie falcons, red-tail hawks, kestrels, great horned owls, and rough legged hawks utilize the abundance of prey species (rabbits, mice, etc.) in the area. Bobcats and coyotes are common. Because of the relative lack of access, trapping has not depleted bobcat populations in the area to the extent that it has on adjacent lands. Migratory shorebirds utilize stock reservoirs, and numerous small bird, mammal, amphibian, and reptile species occur throughout the area.

Threatened and Endangered Species. No bald eagle nests, roosts, or wintering areas have been found in the study area. Peregrine falcon habitat is marginal due to the lack of wetlands and avian prey. Prairie dog towns do occur in the area, but no evidence exists to indicate the presence of black-footed ferrets.

Geology and Mineral Values

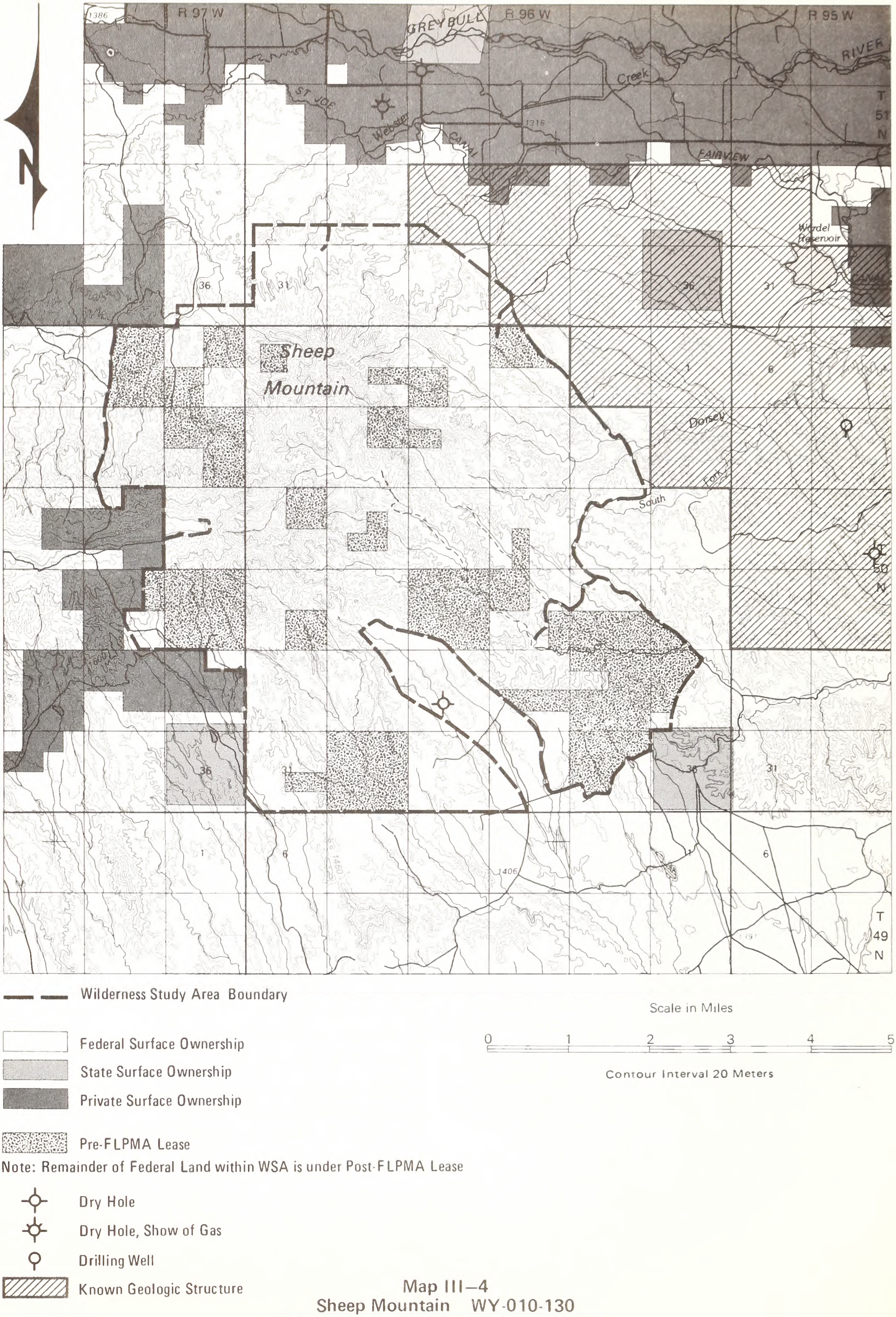
This WSA is located in a mid-basin area northeast of the structurally deepest part of the Bighorn Basin. At this location, about 8,000 feet of Early Tertiary basin-filling sediments overlie locally folded Mesozoic and Paleozoic rocks. Outcrops within the boundaries of the WSA the Eocene Willwood and Tatman Formations and the Early Pleistocene Fenton Pass Formation. The latter two formations occur in a very small area in the extreme west-central part of the WSA, forming the upper 350 to 400 feet of Tatman Mountain.

The greatest potential for economic mineral deposits within the study area is for oil and gas. Underlying the Willwood Formation is a thick sequence of sedimentary rocks including all known oil and gas reservoir horizons ranging from the Paleocene Polecat Bench Formation (Ft. Union) to the Cambrian Flathead sandstone. Recent seismic exploration in the area has delineated the presence of structures conducive to the entrapment of oil and gas beneath the Tertiary sediments, but due to the great thickness of the Tertiary Formations, few exploratory wells have been drilled in the immediate area to date. Two wells were drilled to depths of about 14,000 to 16,500 feet about two miles north of the study area (both were dry but with shows of gas). One dry well, drilled to a depth of about 8,000 feet, was located in the finger of non-WSA land extending into the southern portion of the WSA. Several producing gas wells are located about four miles east of the study area. A Known Geologic Structure containing these producing wells lies adjacent to the northeast part of the study area and overlaps the WSA boundaries at three points (parts of sections 28 and 34, T. 51 N., R. 96 W. and part of section 2, T. 50 N., R. 96 W.).

The wells that have been drilled to date do not establish the presence or absence of producible oil or gas underlying the study area. Given the type of structures, it would require drilling several deep wells to resolve this question and to estimate the size of any reserves that might be present. At this point, all that can be said is that the area has been evaluated by industry, state, and federal geologists as having a "high potential" for oil and gas development.

All the study area lands are included in oil and gas leases. Many of these leases were issued before the passage of FLPMA (Map III-4). These pre-FLPMA leases confer a right to explore and develop the lease regardless of the impact on wilderness values. Leases issued after passage of FLPMA contain a stipulation which allows exploration and development only if wilderness values would not be adversely affected. Oil and gas leases run for ten years but are extended if drilling or production is in progress. Most leases in the study area vicinity lapse after ten years with no activity having occurred. Unless they are extended, all pre-FLPMA leases will lapse on or before September 22, 1986.

There is no known present or past production of minerals within the study area. A check of BLM mining claims recordation lists revealed no mining claims. Under current conditions, potential for coal development is considered low. Formations known to contain economically valuable deposits of coal elsewhere in the Bighorn Basin occur in the subsurface beneath the study area. Their great depth (3,000 to 5,000 feet), poor grade, and local extent (lignite in the Tatman Formation) preclude any present economic consideration. The potential for economic deposits of bentonitic shales or industrial materials such as zeolites ranges from low to moderate. This potential is further reduced by the availability elsewhere of higher grade deposits and substitutes.



Map III—4
Sheep Mountain WY-010-130
Oil and Gas Production and Lease Status

Paleontological Resources

Early Eocene vertebrate fossils are very abundant in and immediately adjacent to the study area. The presence of a number of important vertebrate fossil localities in the area has been documented by institutions such as the Yale Peabody Museum. Some of these localities contain important vertebrates such as *Heptodon* and *Bunophorus*, which have been used by some workers (Shankler 1980) in the zonation of the Willwood Formation. Future work will undoubtedly uncover other sites, as the Willwood Formation has nationwide importance in the scientific community for the study of early Eocene vertebrates.

Realty and Access

Both the surface and the mineral estate of all public lands within the Sheep Mountain WSA belong to the United States and are administered by the Bureau of Land Management. The United State owns the surface of tract 40 (section 16), T. 50 N., R. 96 W., but the mineral estate is owned by the state of Wyoming. For that reason this split-estate section is not part of the WSA although it is surrounded by WSA lands. There is no established access route to this section.

Most of the lands surrounding the WSA are federal lands, but two state sections abut about two miles of the area boundary, and private land parcels abut roughly six miles of the western boundary of the unit. Access to these state and private land holdings does not require access across any of the study area lands.

The Conflict Reduction and Wilderness Manageability Alternatives would both add the split-estate section to the existing WSA. This would involve acquiring the mineral rights from the state of Wyoming. There are state mineral leases in effect on this section. The finger of land that was excluded from the WSA but which would be included under the Wilderness Manageability Alternative is all federal surface and mineral estate.

Sheep Mountain WSA

RED BUTTE (WY-010-131)

The Red Butte study area is located about 12 miles northwest of Worland, Wyoming, in the Fifteenmile Creek drainage. This portion of the Bighorn Basin is characterized by rolling grasslands and broken cold-desert badlands.

Wilderness Values

Naturalness. The central portion of the study area consists of rugged, colorful badland ridges and peaks broken by irregular, sharply cut drainages. Red Butte dominates this central terrain at an elevation of 5,185 feet. The northeastern portion of the WSA exhibits less rugged badlands intermixed with a series of small, bench-like terraces overlooking the flat drainage bottom of Fivemile Creek. This area exhibits a moderately dense cover of sagebrush-grass vegetation in contrast with the bare, red-hued badland ridges. In the western portion, the badlands open up to broad, shallow drainages and flat-to-rolling plains along Reservoir Creek and the North Fork of Fifteenmile Creek. Vegetation in this portion of the unit is predominantly a saltbrush-sagebrush-grass association.

The tract that would be deleted from the existing study area under the Wilderness Manageability Alternative lies in this western portion of the unit and consists of a small segment of the Reservoir Creek drainage.

Although man-made intrusions are present in the unit, they generally are not major enough to significantly detract from the natural character of the Red Butte study area. Study area lands generally appear to have been affected primarily by the forces of nature; the imprint of man is minimal.

A fence line dissects the WSA roughly on the township line between R. 94 W. and R. 95 W., but presents little impact as it meanders through rugged badland topography in the east central portion of the unit. Several old and abandoned bladed trails protrude for short distances from the study area boundary.

Nine livestock reservoirs or retention dams are located in the unit. Most of these have minimal effect because they are small, are located along unit boundary roads, are hidden from view by topographic screening, or are dry and/or washed out. The North Fork Dorsey Detention Dam and the Twin Pockets Reservoir are much larger than others and are the two most prominent man-made features within the unit.

Red Butte WSA

The Wilderness Manageability Alternative would exclude from the designated area the areas of disturbance caused by the Twin Pockets Reservoirs and their access route. It also would make the cherry-stem road leading to the North Fork Detention Dam an external boundary.

Solitude. The Red Butte WSA is located approximately 10 road miles from the nearest paved highway, and a four-wheel drive or high clearance vehicle is needed on the routes leading to the area. Human activity in the vicinity is limited mostly to livestock grazing and oil and gas exploration. The level of these activities is such that it is unusual to meet another vehicle on any of the routes leading to the area.

Solitude is provided within the study area by its rugged badland topography and the absence of man-made features. The winding drainages and steep ridges provide screening in the core of the unit although sights and sounds of activity outside the area would be obvious from some of the area's ridges and peaks.

Primitive Recreation. A Recreation Opportunity Spectrum evaluation of the study area classified this area is presently Semi-Primitive Nonmotorized and Semi-Primitive Motorized (Table III-5). The nonmotorized class is located in the central core of the study area while the motorized lands are those located adjacent to the boundary roads where evidence of man's activity is most apparent.

TABLE III-5

RED BUTTE ROS CLASSES

Existing ROS Class	Acres by Alternative* All Wilderness	Acres by Alternative* Conflict Reduction
Semi-Primitive Motorized	6,312	5,652
Semi-Primitive Nonmotorized	4,598	4,598

*Opportunities that presently exist on the lands covered by each alternative, **not** what would result under wilderness management.

The rugged and varied topography of this unit provides a resource base for a variety of recreation activities. Visitors hiking or exploring the area on horseback can enjoy the vivid colors and interesting erosional features. The higher ridges offer panoramic views extending over large areas of the Bighorn Basin with the Bighorn and Absaroka mountains in the background distance. Opportunities for wildlife and wild horse viewing are also present. Mule deer, antelope, and raptors would be most commonly observed. Game populations support only limited hunting, but trophy size bucks have been observed in the study area.

Wilderness System Diversity. The Bailey-Kuchler Ecosystems classification of the United States (Bailey 1976 and Kuchler 1966) classifies the study area as a combination of saltbush-greasewood and sagebrush steppe vegetation classes within the Wyoming Basin Ecoregion. No ecosystem in the Wyoming Basin Ecoregion has been included in the wilderness system or recommended to Congress for wilderness designation.

Recreation

The primary recreation use seasons are late spring, early summer, and fall. High temperatures in late summer discourage use during that period. Most of visitor use originates from the Dorsey Creek/Fifteenmile and Elk Creek access roads. The boundary roads then provide peripheral vehicular access points for specific recreation activities, such as sightseeing, rock collecting, and hunting. Because of its remoteness and the highly dispersed type of visitor use that the study area receives, it has not been practical to attempt to collect use data for the area, but visitor use probably totals no more than a few hundred days per year.

Visual Resources

The study area has been rated as having areas of "B" and "C" quality scenery under the BLM Visual Resource Management System. This visual quality combined with a low sensitivity rating results in the area being placed in a Visual Resource Management Class IV. Under this classification, major modifications on the existing visual character of the landscape are allowed. Actions or projects which would be a dominant feature of the landscape in terms of scale are permitted, but efforts would be made to mitigate the visual impacts of a project by trying to blend it in with the natural form, line, color, and texture of the setting.

Watershed

The Red Butte WSA consists of five major soil associations and complexes. They are generally well drained and include areas of shallow, saline soils; small areas of moderately deep, sandy soil; and occasional limited areas of deep, saline soils. These soils have a naturally high rate of erosion and are very difficult to stabilize after disturbance.

The study area lies in the 5 to 9 inch precipitation zone, receiving the majority of its moisture in the form of rain during summer thunderstorms. The area is drained by Fifteenmile and Fivemile Creeks, perennial tributaries of the Bighorn River. Water quality data is limited for this area, but sediment from erosion during runoff events has been identified as the most serious water quality problem. High sediment yields contribute to downstream costs and problems relating to municipal and agricultural uses, fisheries, and reservoir siltation. Salinity is also a concern because of downstream effects on crop yields and municipal water treatment costs. The physical characteristics and water bearing properties of the Willwood Formation limit the occurrence of groundwater in the study area. There are no known springs or wells in the WSA.

Approximately 60 percent of the study area has been classified as rock outcrop (badlands) range site. This part of the area has very limited vegetation and is unsuitable for livestock grazing due to its lack of vegetation and steep slopes. The remainder of the area is either sandy or saline upland range sites. The predominate plant species include Gardner saltbush, big sagebrush, blue grama, and other desert grasses, cactus, and forbs.

Livestock Grazing

The lands in the Red Butte study area include parts of two grazing allotments (Map III-5). These allotments and the associated animal unit months (AUMs) affected by each alternative are listed by Table III-6. The AUMs listed in that table are the total apportioned capacity; actual licensed use in recent years has been well below this level. In fact, over the last three years, licensed use on the two allotments has averaged only 40 percent of the apportionment. This level of use reflects actual forage available. Within the study area boundaries, actual use is probably even lower than this percentage suggests, because there is better forage on other parts of these allotments than is available in the study area.

The majority of grazing use in this study area is concentrated around the existing reservoirs and detention dams, which provide necessary water for livestock, wild horses, and wildlife. Access for grazing use is available on cherry-stem roads and vehicle trails, as well as the boundary roads. These routes are also used for maintenance of reservoirs.

TABLE III-6

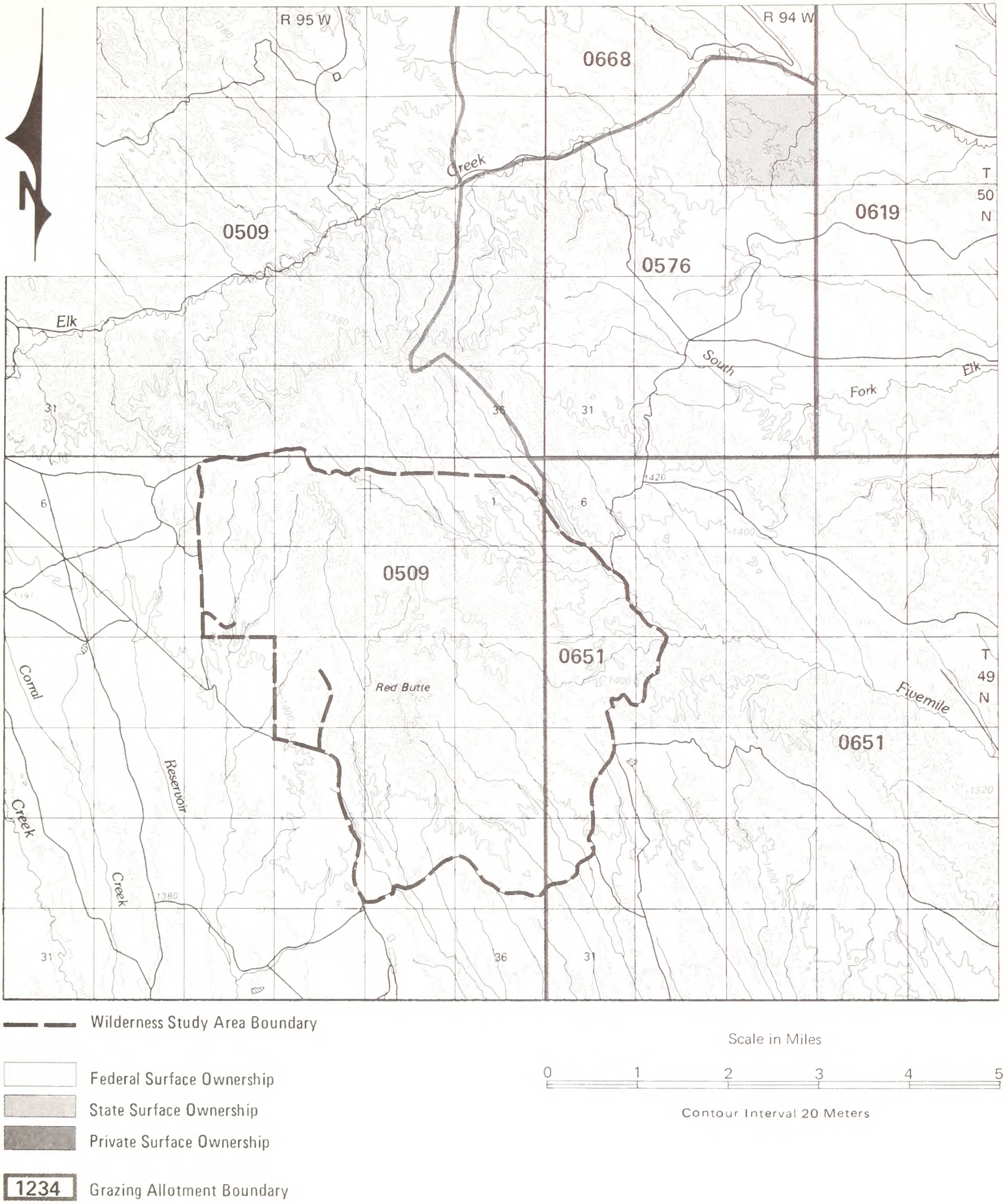
RED BUTTE LIVESTOCK GRAZING ALLOCATIONS

Allotment Number	Season of Use	Class of Livestock	AUMs by Alternative: All Wilderness	AUMs by Alternative: Conflict Reduction
0509	Winter Spring-Summer	Sheep Cattle	486	466
0651	Spring-Winter-Fall	Cattle	61	61

Wildlife

This study area provides habitat for a wide variety of mammals, birds, reptiles, and amphibians. A list of these species and the habitats used by them is available in the Grass Creek Resource Area Office.

Big Game. Pronghorn antelope and mule deer are the two big game species inhabiting the area. An estimated 100 mule deer occupy the WSA year round except during severe winter conditions when approximately half of these animals move out of the WSA to the Fifteenmile Creek drainage bottom. The population of the mule deer herd in



Map III—5
Red Butte WY-010-131
Grazing Allotments

Red Butte WSA

the WSA is relatively stable, but increased accessibility through improved access roads has increased vulnerability of the herd. Approximately 50 antelope are present in the study area yearlong except during severe winters when numbers are lowered considerably.

Game Birds. Sage grouse, chukar partridge, hungarian partridge, mourning dove, and waterfowl inhabit the study area. Sagebrush benches and drainage bottoms provide the habitats used by sage grouse in the WSA. Chukar and Hungarian partridge populations are widely dispersed throughout the WSA. Populations fluctuate widely due to climatic severity. Mourning doves use the sagebrush-mixed grass habitats and riparian areas during the summer and early fall. Waterfowl utilize the stockwater impoundments in the WSA.

Nongame Wildlife. Raptors are common in the study area, and the badland areas receive winter concentrations of golden eagles. Ferruginous hawks, prairie falcons, red-tail hawks, kestrels, great horned owls, and rough legged hawks all utilize the study area. Bobcats, coyotes, and numerous small nongame birds, mammals, reptiles, and amphibians occur in the study area.

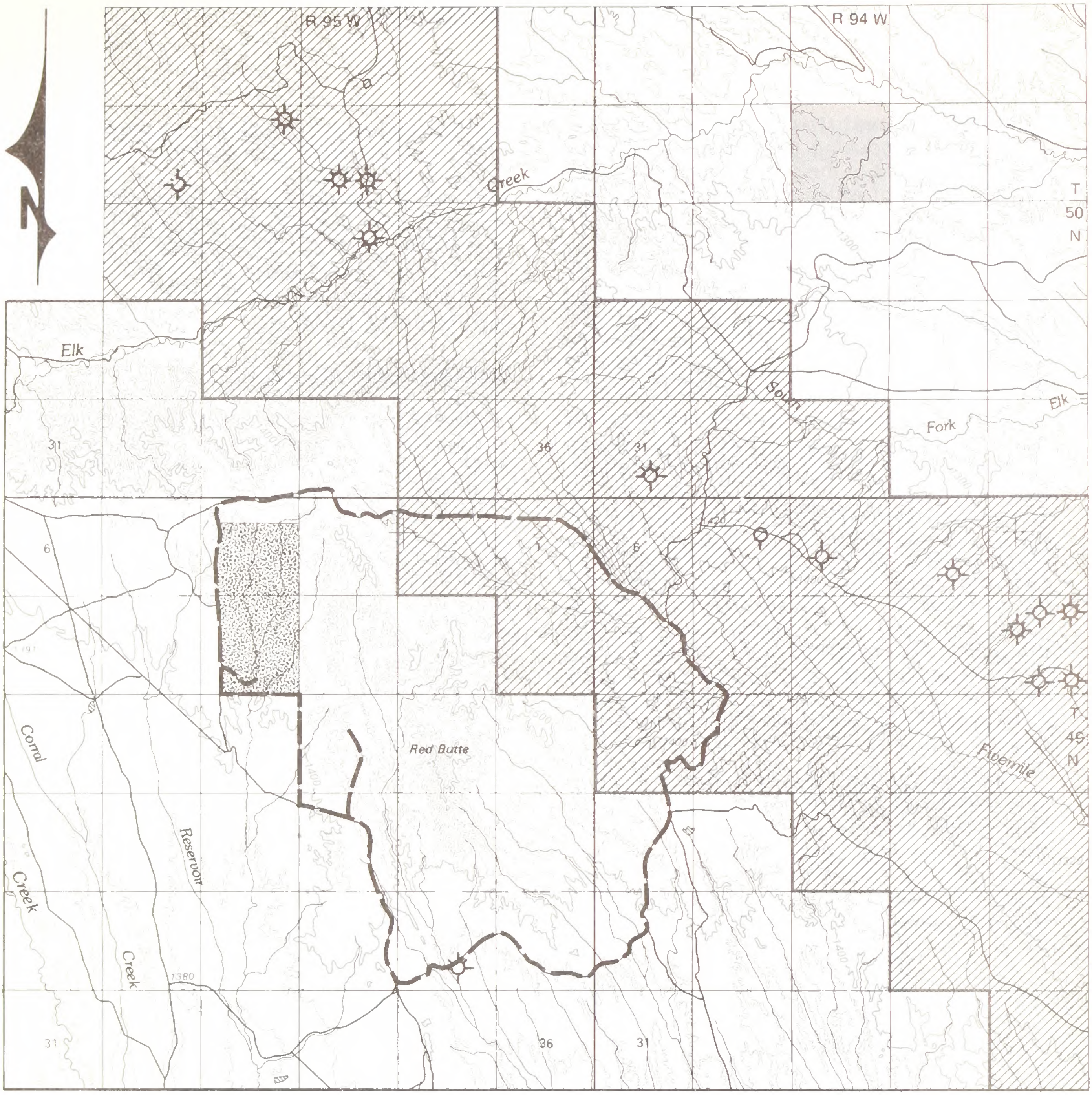
Threatened and Endangered Species. No bald eagle nests, roosts, or wintering areas have been found in the study area. Peregrine falcon habitat is marginal. Prairie dogs do occur in the area, but no evidence exists to indicate the presence of black-footed ferrets.

Geology and Mineral Values

The study area is located near the structurally deepest part of the Bighorn Basin. At this location, about 7,000 feet of Early Tertiary basin-filling sediments overlie locally folded Mesozoic and Paleozoic sedimentary rocks. Outcrops within the study area expose the early Eocene Willwood Formation. This formation consists of a sequence of commonly varicolored mudstones, sandstones, and locally bentonitic shales.

The greatest potential for economic deposits within the study area is for oil and gas. Underlying the Willwood Formation is a sequence of sedimentary rocks including all known oil and gas reservoir horizons ranging from the Paleocene Polecat Bench Formation (Fort Union) to the Cambrian Flathead Sandstone. Due to the great thickness of the overlying Tertiary Formations, few exploratory wells have been drilled in the immediate area. Seismic exploration has delineated structures conducive to the entrapment of oil and gas beneath the Tertiary sediments.

There has also been substantial drilling activity and production near the area (Map III-6). One exploratory well was drilled on the southern boundary of the WSA in 1978-79 to a depth of nearly 14,000 feet. This well is listed as a dry hole, but Petroleum Information Corporation files indicate a "show" of 1,280 MCFGPD (thousand cubic feet gas per day). A major oil and gas field is



— — Wilderness Study Area Boundary

☐ Federal Surface Ownership

▢ State Surface Ownership

■ Private Surface Ownership

▒ Pre-FLPMA Lease

Note: Remainder of Federal Land within WSA is under Post-FLPMA Lease

⌖ Dry Hole

⌖ Dry Hole, Show of Gas

✲ Producing Gas Well

⚲ Drilling Well

▨ Known Geologic Structure

Scale in Miles

0 1 2 3 4 5

Contour Interval 20 Meters

Map III—6
Red Butte WY-010-131
Oil and Gas Production and Lease Status

located about three to four miles east of the WSA, and several producing gas wells occur about three miles north of the study area. At least two dry holes (one of which had a show of gas) are situated less than two miles northeast of the WSA boundary, and a new well is presently being drilled in the same general location. Based on these drilling and production results, a Known Geologic Structure has been delineated which overlaps the northeastern quarter of the study area. This delineation is indicative of the area's high potential for oil and gas production.

All the study area lands are included in oil and gas leases. Several of these leases were issued before the passage of FLPMA (Map III-6). These pre-FLPMA leases confer a right to explore and develop the lease regardless of impact on wilderness values. Leases issued after passage of FLPMA contain a stipulation which allows exploration and development only if wilderness values would not be affected. Oil and gas leases run for 10 years but are extended if drilling or production is in progress. Most leases in the study area vicinity lapse after 10 years with no activity having occurred. Unless they are extended, these pre-FLPMA leases will lapse on or before August 1, 1985.

There is no known present or past production of minerals within the study area. A check of BLM mining claim recordation lists revealed no mining claims in the area. Under current conditions, potential for coal development is considered low. Formations known to contain economically valuable deposits of coal elsewhere in the Bighorn Basin occur in the subsurface beneath the study area. However, their great depth (at least 4,000 to 5,000 feet) precludes any present economic interest. Other potential economic deposits, such as bentonitic shales and potential industrial materials (zeolites) may be present, but their development potential is limited by the availability of higher-grade deposits elsewhere and a non-critical market situation.

Paleontological Resources

Early Eocene vertebrate fossils are very abundant in this vicinity. Several specimens of an extremely rare arctocyonid have been collected within the WSA, and Yale-Peabody locality 45, felt to be the "richest known Eocene mammal site in the Bighorn Basin," lies less than a mile from the study area boundary (Bown 1980).

Realty and Access

Both the surface and the mineral estate of all lands within the Red Butte study area belong to the United States and are administered by the Bureau of Land Management. All of the lands surrounding the study area are federal lands except that the state of Wyoming owns the mineral estate of section 16, T. 49 N., R. 95 W. The BLM manages the surface of this section. No private lands exist within or adjacent to the study area. The lands that would be deleted under the Wilderness Manageability Alternative are all federal surface and mineral estate.

Red Butte WSA

MCCULLOUGH PEAKS (WY-010-335)

The McCullough Peaks WSA is located in the northern portion of the Bighorn Basin, 10 miles northeast of Cody, Wyoming, and eight miles south of the city of Powell.

Wilderness Values

Naturalness. The WSA consists of the badlands which form the north slopes of the McCullough Peaks. The terrain is characterized by sharp ridges and deeply eroded drainages. The scale, steepness, and complexity of the maze of dendritic drainages together with the distant vistas provided by the higher ridges contribute to the area's unique character. Five major drainages originate in the study area. These are: Deer Creek, Willwood Draw, Roan Wash, and the north and west branches of Whistle Creek. Elevations vary from 4,400 feet in the northwest corner of the unit to approximately 6,400 feet along the McCullough Peaks crest. There are no perennial streams in the study area. The western tract that would be added to the WSA under the Wilderness Manageability Alternative consists of spectacular, steep, badland ridges, and drainages dropping sharply from the peaks to the Shoshone River.

Evidence of man's activity in the area is provided primarily by vehicle ways and livestock reservoirs. Most of the vehicle ways were developed for geophysical exploration use. No maintenance has been done on these routes, so most have washed out and are impassible. Erosion and revegetation are returning them to a natural-appearing condition. The impact of a cherry-stem road extending up the Deer Creek drainage to the reservoir in the NE¼ sec. 24, T. 54 N., R. 100 W. is limited by its infrequent use, minimal construction, and the visual screening afforded by its drainage bottom location.

There are 17 small livestock reservoirs within the WSA. Approximately half of these are located along the roads forming the area boundary. Eight do not hold water and are either silted in or have breached dikes. The operational reservoirs have little effect because most are located in small side drainages where the terrain hides them from view.

These vehicle trails, reservoirs, and a few short segments of gap fencing are so small in the scale of this landscape and are so sparsely scattered that in most of the area their effect on naturalness is insignificant. Activities outside the area also have little impact on its natural character. The ridge lines along the western and southern bound-

McCullough Peaks WSA

aries hide most activities outside the area in these quadrants, and the lands east of the WSA are nearly as natural as it is.

The only part of the WSA that does not have outstanding natural character is the strip along the northern WSA boundary identified to be excluded from wilderness designation under the Conflict Reduction and Wilderness Manageability Alternatives. This strip contains at least nine miles of vehicle trail, about two miles of fence, two reservoirs, a water well, and half a mile of cherry-stem road. A major powerline forms two miles of its boundary. The lands in the strip vary from low rolling hills to broad flats with a slight northward slope. This terrain provides little visual screening, so the farms along the Shoshone River are often visible. These factors cause the natural character of this strip to be quite marginal. It was included in the WSA largely because there was no single obvious feature (such as a constructed road) that could be used to separate it from those parts of the WSA that do have excellent natural character.

The lands that would be added to the existing WSA under the Conflict Reduction and Wilderness Manageability Alternatives are substantially natural. The state section is one of the most steep, rugged tracts of land in the study area. This section and the split-estate section show no significant evidence of human use. The tract on the west side of the WSA that would be incorporated in the Wilderness Manageability Alternative contains vehicle trails, seven small stock reservoirs (some of which are not operational), and a developed spring. Most of the vehicle trails are impassable. The route separating these lands from the WSA has not been maintained for several years and has been impassable for at least the last three years. Much of this route was located on steep slopes, and it is rapidly being obliterated by erosion. Neither it nor the other man-made features on this tract detract substantially from natural character.

Solitude. The northern boundary of the study area is only two miles south of a paved highway, yet access to the area is relatively restricted. The Willwood Canal, located between the highway and the WSA, has only two or three crossing points. A short segment of the road leading to the northwest corner of the area is passable for a standard vehicle, but all other routes, to or along the study area boundaries, require high clearance and four-wheel drive.

Potential addition to McCullough Peaks Area

The terrain of the study area is the factor having the greatest influence on opportunities for solitude, the presence of several major drainages within the study area, each branching into a maze of small, winding badland canyons, ensures both excellent dispersal of use and an exceptionally high degree of visual screening. In this type of terrain, a user could pick any of the numerous small drainages, find a secluded spot, and be completely free of the sights and sounds of others.

Primitive Recreation. The recreation setting provided by the WSA was evaluated using the Recreation Opportunity Spectrum system. The opportunities that the lands in the study area are currently capable of providing are shown in Table III-7. The portion of the area that provides Semi-Primitive Nonmotorized opportunities is unusually large. This reflects the rugged terrain, the absence of any significant internal intrusions, and the lack of major developments or good access roads adjacent to the area. The marginal natural character and wilderness recreation base of the strip that would be excluded under the Conflict Reduction and Wilderness Manageability Alternatives is revealed by its ROS ratings. Approximately 1,000 acres of this strip rated as Roaded Natural, and virtually all the rest was classified as Semi-Primitive motorized. The tract that would be added under the Wilderness Manageability Alternative contains 3,660 Semi-Primitive Nonmotorized acres and 2,350 Semi-Primitive Motorized acres.

TABLE III-7

McCULLOUGH PEAK ROS CLASSES

	Acres by Alternative Land Area*		
Existing ROS Class	All Wilderness	Conflict Reduction	Wilderness Manageability
Roaded Natural	1,390	400	400
Semi-Primitive Motorized	6,950	5,970	8,320
Semi-Primitive Nonmotorized	16,230	17,210	20,870

*Opportunities presently available on the area included under each alternative, **not** what would exist if the alternative is selected for wilderness designation.

The diversity of terrain in the area provides a resource base for a variety of recreation activities. The study area has attributes (interesting topography, scenic vistas, and wildlife) that attract people to participate in activities such as hiking, horseback riding, nature study, and hunting. Game populations support game bird and limited trophy buck hunting, and at least one local outfitter guides hunts in the area. The vividly colored and highly eroded ridges and hills have outstanding scenic quality. Opportunities for wild horse viewing are present, since several bands roam the area. The McCullough Peaks area has been known for its paleontological and geologic interest values for some time.

Wilderness System Diversity. The Bailey-Kuchler Ecosystems classification of the United States (Bailey 1976 and Kuchler 1966) classifies the study area as sagebrush steppe and/or wheatgrass-needlegrass shrub steppe vegetation class within the Wyoming Basin Province Ecoregion. This ecoregion-potential vegetation combination is not represented in any designated wilderness area.

Recreation

The existing recreation use in the study area includes hunting for deer and game birds, rock collection, sightseeing, and ORV use. Most of the ORV use occurs in support of other activities, but sometimes it is an end in itself. For the most part, the existing vehicle use is limited by terrain to the area boundary roads and other existing vehicle ways.

Seasonal temperature fluctuations limit most recreation use to late spring, early summer, and fall. High temperatures in late summer discourage use during that period. Because of the dispersed type of visitor use that the area receives, it has not been practical to attempt to collect use data for the area, but present use is probably between a few hundred and a few thousand visitor days per year.

The lands that would be added to the WSA under the Conflict Reduction or Wilderness Manageability Alternatives offer the same opportunities and receive essentially the same use as areas within the WSA.

McCullough Peaks WSA

Visual Resources

The natural badlands landscapes of the McCullough Peaks (already described in the naturalness discussion) provide excellent visual diversity and scenic quality. Visual resource inventories have rated the area as "A quality" scenery having high visual sensitivity. As a result it has been placed in a Visual Resource Management Class II category. Under this classification a strong effort is made to protect scenic resource values by applying visual design techniques to any actions that would disturb the natural landscape.

Watershed

The McCullough Peaks WSA contains badlands soils derived from the Willwood Formation. These soils are very shallow to moderately deep on moderate to extremely steep slopes. They are poorly developed and reflect the layered character of the underlying shales, mudstones, and sandstones. Soil textures range from sandy to clayey, salt contents are high, and pH values tend to be strongly alkaline. These soils are mostly well drained, have limited available water capacity, and have rooting depths generally less than 30 inches. Surface runoff is rapid, and the erosion hazard is high. Vegetation production levels of these sites are generally low, and susceptibility to vegetative rehabilitation following disturbance is also low.

Precipitation in the study area averages about 7 inches per year with the majority of surface water derived from short intense thunderstorms during the spring and summer months. Ephemeral drainages serve to channel water from the study area to the Shoshone River. Scant vegetative cover and the exposed highly erodible varicolored claystones and channel sandstones of the Willwood Formation produce sediment laden waters when the ephemeral channels flow. High sediment yields contribute to downstream costs and problems relating to municipal and agricultural uses, fisheries, and reservoir siltation. Salinity is also a concern because of downstream effects on crop yields and municipal water treatment costs.

Ground water is limited due to physical characteristics and water bearing properties of the Willwood Formation. One water well and one developed spring occur in the study area.

Most of the study area is rock outcrop (badlands) range site. This range site is made up of steep slopes, ridge tops, and benches. Major plant species are wheatgrasses, needle-and-thread, squirrel tail, Indian ricegrass, big sagebrush, and Gardner saltbush. The drainage bottoms are predominately saltbush, greasewood, and big sagebrush with a sparse understory of blue grama, Sandberg bluegrass, Indian ricegrass, and cactus.

Livestock Grazing

The lands in the McCullough Peaks study area include parts of four grazing allotments (Map III-7). These allotments and the associated animal unit months (AUMs) affected by each alternative are listed by Table III-8. The AUMs listed in that table are the total apportioned capacity. Licensed use in recent years has been very close to these capacity levels, but livestock operators have been unable to get full utilization of these licensed AUMS due to wild horse use in the area. At present, there is no forage allocated for the horses.

Livestock distribution in the study area is determined by the terrain and by the availability of water. These factors produce a considerable variation in grazing use distribution. Access for grazing use is available on the cherry-stem road and vehicle trails, as well as boundary roads. These routes are also used for maintenance of reservoirs when required. Vehicle use for livestock management off of existing trails is largely precluded due to roughness of the terrain. There has been a history of use of the vehicle trail along the drainage divide between the branches of Whistle Creek for management of sheep, including a sheep camp.

Livestock forage improvement in the study area could be accomplished through stock management and controlling wild horse numbers. No range improvement projects (except maintenance of existing reservoirs) are planned.

TABLE III-8

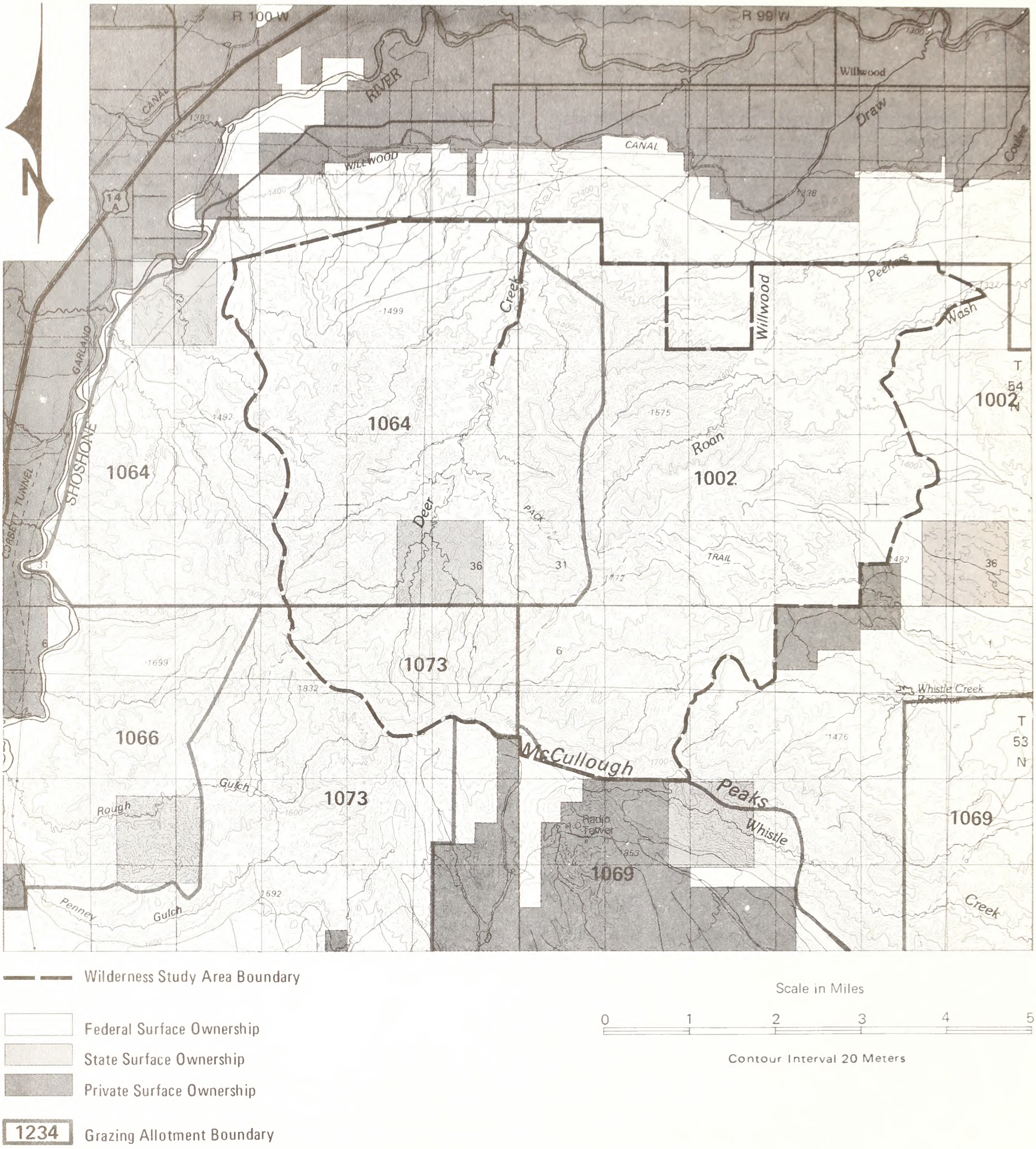
McCULLOUGH PEAKS GRAZING ALLOCATIONS

			AUMs by Alternative		
Allotment Number	Season of Use	Class of Livestock	All Wilderness	Conflict Reduction	Wilderness Manageability
1064	Summer-Fall	Cattle	392	272	406
1073	Summer	Cattle	52	52	84
1002	Spring-Fall	Sheep	197	201	201
1066	Spring-Fall	Cattle	0	0	70

Wildlife

This study area provides habitat for a wide variety of mammals, birds, reptiles, and amphibians. A list of these species and the habitats used by them is available in the Cody Resource Area Office.

Big Game. Major big game species include mule deer, a very few whitetail deer, and antelope. Mountain lion have also been known to inhabit the area. These big game animal populations are generally stable. Both the WSA and the land added under the Wilderness Manageability Alternative contain habitat for concentrations of wintering deer. The population density for mule deer is greatest during the months of December through April when numbers may range from 300 to 400 animals. Most antelope use is transient and is associated with movements to and from more traditional antelope habitat locations outside the



Map III—7
McCullough Peaks WY-010-335
Grazing Allotments

area. Occasional whitetail deer enter the McCullough Peaks badlands from adjacent riparian river bottom habitat. According to the most recent Big Game Unit Reportissued by the Wyoming Game and Fish Department, the overall deer population trend is increasing in this analysis unit and is compatible with the management objective. However, an increase in antlerless permits for this hunt area may be required to help minimize crop depredation problems on agriculture lands near the WSA.

Game Birds. The study area provides excellent habitat for chukar and marginal habitat for sage grouse and Hungarian partridge. Numbers of chukar and Hungarian partridge fluctuate widely in response to climatic severity. No sage grouse strutting or nesting ground complexes have been identified in the study area. Most waterfowl use of the various stock ponds is migrant and occurs during the spring and fall seasons, but some broods are produced and remain through most of the summer months.

Nongame Wildlife. Various species of raptors utilize the area for nesting and foraging. These include golden eagle, prairie falcon, kestrel, redtail hawk, and great horned owl. Other raptors that may be found in the area include ferruginous, Swainson's, rough legged, and marsh hawks, short-eared and long-eared owl and merlin. Identification of these birds of prey has been the result of intensive raptor nest inventories. Bobcats, coyotes, and fox prey on abundant cottontail rabbits, jackrabbits, and other rodents.

Threatened and Endangered Species. Bald eagles and peregrine falcons may occasionally forage or fly through the area, but no threatened and endangered species critical habitat has been identified. No known prairie dog colonies occur, and no evidence exists to indicate the presence of black-footed ferrets.

Geology and Mineral Values

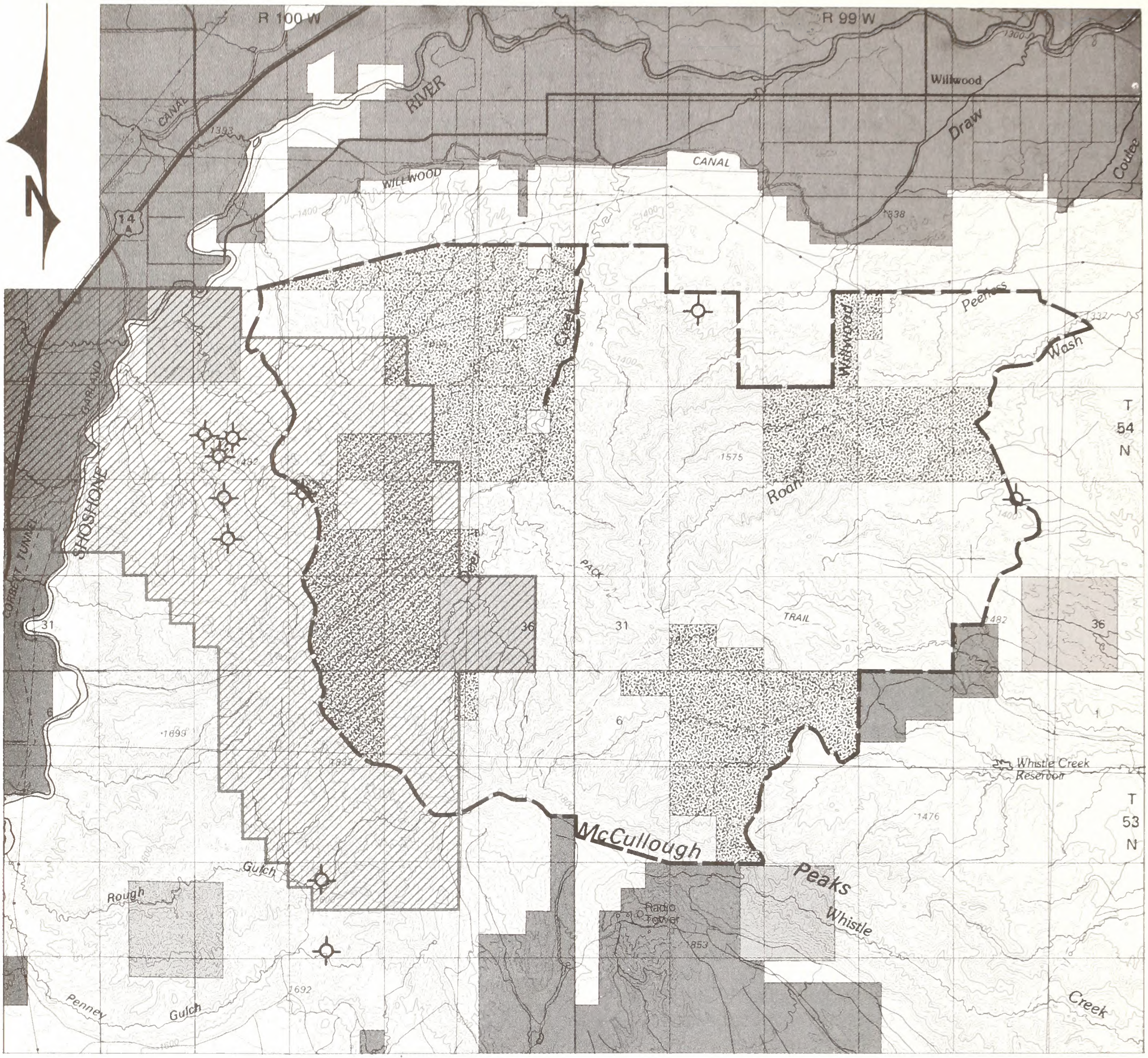
The study area is located near the structural axis of the Bighorn Basin. At this location, about 7,000 feet of early Tertiary sandstones and shales overlie locally folded Mesozoic and Paleozoic sedimentary rocks. Bedrock geology in the WSA consists of the early Eocene Age Willwood Formation, comprising approximately 2,500 feet of variegated maroon to yellowish grey shale and interbedded lenticular sandstones. Bentonitic clays occur throughout this formation. The higher peaks in the study area are mantled by limestone deposits that comprise remnants of the upper plates of the Heart Mountain detachment fault.

The study area has high potential for oil and gas. Possible traps include shallow anticlinal structures in the western portion of the WSA and stratigraphic accumulations and deep gas producing structures in the eastern portion. The Amoco Production Company McCullough Peaks well in NWNW section 27, T. 54 N., R. 100 W. tested a shallow anticlinal structure extending north from the Oregon Basin Field. The well, which bottomed in the Morrison Formation at 13,800 feet, had an initial production of 60 to 100 thousand cubic feet of gas per day. This production rapidly declined, however, and the hole was abandoned. Another well near the western boundary of the study area in NESW section 21, T. 54 N., R. 100 W. resulted in discovery of the McCullough Peaks Field in 1962. Cumulative production from this structure has totaled more than 400 million cubic feet of gas. Based on these drilling and production results, a Known Geologic Structure has recently been delineated which overlaps the western quarter of the study area.

Deep producing structures are possible beneath or immediately east of a major thrust fault that traverses the WSA from north to south. Thrust related structures beneath the fault were tested by the Hunt Oil Company Number 1 Lock Katrine well in section 2, T. 51 N., R. 100 W., 11 miles south of the study area. This well, the Bighorn Basin's deepest at 23,900 feet, was completed in 1982 as a dry hole.

The eastern half of the study area has potential for deep, overpressured gas from rocks of Cretaceous age and older. One well in section 2, T. 51 N., R. 98 W. tested this type of potential approximately 14 miles southeast of the study area. This well, completed in November 1982, resulted in discovery of a new gas field in the Frontier Formation. Initial production from the well was reported to be 353 thousand cubic feet of gas per day. Two shallower stratigraphic test wells were completed near the eastern and northern edges of the study area in 1967 and 1979. The Gulf Red Point Unit in NWNE section 26, T. 54 N., R. 99 W. was completed to 10,508 feet in 1969 and was reported to have had a show of gas in the Tertiary age Fort Union Formation.

All study area lands are included in oil and gas leases. Some of these leases were issued before the passage of FLPMA (Map III-8). These pre-FLPMA leases confer a right to explore and develop the lease regardless of the impact on wilderness values. Leases issued after the passage of FLPMA contain a stipulation which allows exploration and development only if wilderness values would not be adversely affected. Oil and



▬ ▬ Wilderness Study Area Boundary

Scale in Miles

0 1 2 3 4 5

Contour Interval 20 Meters

☐ Federal Surface Ownership

▒ State Surface Ownership

▓ Private Surface Ownership

░ Pre-FLPMA Lease

Note: Remainder of Federal Land within WSA is under Post-FLPMA Lease

-○- Dry Hole

-☼- Dry Hole, Show of Gas

☼ Producing Gas Well

▨ Known Geologic Structure

Map III–8
McCullough Peaks WY-010-335
Oil and Gas Production and Lease Status

gas leases expire after ten years but can be extended if drilling or production is in progress. Most leases in the study area vicinity lapse after ten years with no development having occurred. Unless they are extended, all pre-FLPMA leases in the study area will lapse on or before June 1, 1986.

There has been no known mineral production from the study area. An examination of BLM mining claims records revealed no mining claims in the area. The higher grade bentonites in the study area have some low future development potential, but existing large reserves of high grade bentonite are more readily available in other portions of the Basin. Localized coal zones and carbonaceous shales in the Willwood Formation appear to have little to no future development potential. Results of a reconnaissance stream sediment geochemical survey, using 21 sample points in and near the study area, indicate no evidence of metallic mineralization (Barrell and Ross 1983). Based on existing data, there appears to be no potential for significant mineral resources other than oil and gas in the study area.

Paleontological Resources

The McCullough Peaks area is well known for its paleontological values.

> The Willwood or McCullough Badlands represent one of the most spectacular exposures of the Eocene Tertiary rocks in the west-central part of the Bighorn Basin. These badlands have been extensively explored for fossils. Reptiles, mammals, and fossil plants along with limited invertebrate animals have been recovered from extensive exposures. (Rigby 1981).

Two fossil sites, one in Roan Wash just east of the study area and one in Rough Gulch just west of the area, have been described in scientific literature relating to regional paleontological values.

Realty and Access

Both the surface and the mineral estate of all public lands within the McCullough Peaks WSA belong to the United States and are administered by the Bureau of Land Management. The state of Wyoming owns both the surface and mineral estate of tract 57, T. 54 N., R. 100 W., which is entirely surrounded by WSA lands.

Most of the land surrounding the WSA is in federal ownership. The United States owns the surface of lot 39, T. 54 N., R. 99 W., but the mineral estate is owned by the state of Wyoming. For that reason, this split-estate section is not part of the WSA. Private land parcels abut roughly three miles of the southern boundary of the unit. Access to these split-estate and private land holdings does not require crossing any of the study area lands.

The Conflict Reduction and Wilderness Manageability Alternatives would both add the split-estate and state sections to the existing WSA. This would involve acquiring the mineral rights on these sections from the state of Wyoming. There are state mineral leases in effect on both of these sections. The block of the land to be included under the Wilderness Manageability Alternative is all federal surface and mineral estate.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

This chapter describes the expected impacts and consequences of wilderness designation or nondesignation on the affected environment described in Chapter III. Each alternative identified in Chapter II for each study area is analyzed in terms of the resource elements discussed in Chapter III. The social and economic consequences of designation or nondesignation are discussed following the individual area analyses.

The following assumptions were used to provide a standard framework for impact analysis and comparison among alternatives:

1. Management actions on areas designated as wilderness would be in accordance with the *Wilderness Management Policy* (September 1981) and the Wilderness Act of 1964.
2. Management actions on areas not designated as wilderness would be based on existing management plans and applicable laws and regulations.
3. Until a congressional decision is reached on wilderness designation or nondesignation, the areas will continue to be managed to protect their wilderness character as required by the FLPMA and the BLM *Interim Management Policy and Guidelines for Lands Under Wilderness Review.*
4. BLM will have sufficient funding and work force to implement the management option selected.

The analysis of environmental consequences documented in this chapter considered for each alternative adverse environmental consequences which could not be avoided, the relationship between short-term uses of man's environment and the maintenance and enhancement of long term productivity, and any irreversible or irretrievable commitments of resources. Measures which could potentially mitigate the adverse environmental impacts of an alternative were also evaluated. These points are discussed in the following narrative when appropriate and are summarized in tabular form at the end of this chapter.

BOBCAT DRAW BADLANDS

NO WILDERNESS ALTERNATIVE (Proposed Action)

Impacts on Wilderness Resources

Nondesignation of the study area would have short and long term adverse impacts on wilderness resource values. Under this alternative, exploratory drilling for oil and gas would be almost certain to occur and, if successful, would be followed by production. The degree of impact on natural character would depend on the type and extent of activity.

If exploration were limited to a few unsuccessful wells, the degradation of natural character would be minimal. The impacts of the exploration activity would be mitigated by operating procedures and lease stipulations designed to protect watershed, wildlife, and visual resource values. The topography of the area would limit the impact of any one well to the immediate drainage. Reclamation of sites would be required but would not return the area to a natural-appearing condition. As the number of wells increased, the cumulative impact of the surface disturbance caused by each well and its access road would eventually reach the point where the area could no longer be said to appear to have been affected primarily by the forces of nature.

If production and field development resulted from exploration, major alterations of natural character could result. Operating wells, access roads, pipelines, powerlines and other facilities would be required. This "worst case" scenario would reflect the high level of human activity typical of oil field development. The proportion of the area on which natural character would be lost would depend on the location and extent of development.

Opportunities for solitude or primitive unconfined recreation would also be degraded by oil and gas activity. The effects on natural character and the increased access resulting from exploration activity would change the existing 7,640 acres of Semi-Primitive Nonmotorized recreation opportunity to either a Semi-Primitive Motorized or a Roaded Natural ROS classification, depending on the extent of activity. Production and field development would change the classification of the area involved to the Roaded Natural or Rural ROS class. Opportunities for solitude would be eliminated anywhere within site and sound of exploration or production activity.

If oil and gas activity consists of nothing more than the drilling of a few unsuccessful wells, the impacts would be short term, and reclamation efforts possibly could be successful enough to reverse the limited impacts. Extensive exploration or production activity would irreversibly alter the natural setting and wilderness character of the study area.

Impacts on Recreation

Opportunities for vehicle oriented recreation use would be increased by the improved access associated with a moderate level of energy exploration in the study area, but intensive field development could degrade recreation resource values. The Grass Creek Management Framework Plan identifies most of the lands in the study area for inclusion in an off-road vehicle designation limiting vehicle use to specifically identified roads and trails. This ORV designation would protect the scenic and wildlife values that draw recreation use to the area while allowing access on established routes. This designation has not been implemented yet, and it will be somewhat difficult to enforce when it is.

Impacts on Visual Resources

The study area would remain in a visual resource management Class II, and visual resource management techniques would be utilized to limit the impact of uses and management actions on the scenic resources. The greatest impact on scenic values would come from oil and gas activities. These impacts would be mitigated by site location, layout selection, and painting of facilities to blend with the natural colors of the landscape. These techniques could maintain scenic quality under a low-to-moderate level of energy activity, but could only slightly mitigate the effects of intensive exploration or development.

Impacts on Watershed Resources

Impacts on watersheds under this alternative would depend on the extent of oil and gas exploration and development. Although oil and gas operations are regulated to prevent unnecessary and undue impacts, soil erosion would increase as a result of surface disturbance and removal of vegetative cover. Degradation of water quality could result from increased sediment derived from disturbed areas and increased salinity, if produced water from treatment facilities is discharged into surface drainages. Although produced water must meet effluent standards set by the state of Wyoming, Department of Environmental Quality, discharge water would most likely be more saline than receiving waters. These sediment load and salinity increases would not significantly increase water quality problems for downstream use, but they would be inconsistent with efforts to improve water quality in the Bighorn Drainage.

Bobcat Draw Badlands WSA

These impacts would be mitigated by regulations requiring that disturbed areas be recontoured and reseeded, but such reclamation efforts would have a minimal chance of success given the fragile soils and low precipitation of the area. Structural and mechanical treatments could also be used to control sediment from erosion. Long term produced water discharges could promote channel stabilization in existing ephemeral drainages by promoting propagation of emergent and subemergent aquatic vegetation.

Impacts on Livestock Grazing

The only potential for adverse effects on livestock grazing would be associated with the unlikely possibility that oil and gas operations might reach a level that would create conflicts with grazing. Grazing management could benefit slightly from increased access resulting from mineral exploration. Existing grazing practices would continue within the requirements of range management regulations. The maintenance of existing range improvements and construction of new ones would be unaffected.

Impacts on Wildlife

Impacts on wildlife would be dependent on the intensity, duration, and frequency of energy related activity and public use of access routes developed during thatactivity. Disturbance and localized displacement of wildlife would occur and acreage of effective habitat and carrying capacities in the study area would decrease with increased activity.

Big game habitat loss would result from construction of roads, pipelines, drill pads, etc. Big game (antelope and mule deer) losses would not be significant to overall populations, but localized seasonal populations would be significantly reduced. No significant losses to game birds would be expected, although use of reservoir water for energy activities or the occurrence of oil spill could adversely affect waterfowl and game birds in isolated cases. Bobcat populations could be reduced if improved access increased trapping, but no other significant effects on nongame wildlife or furbearers are anticipated.

These limited expectations for wildlife impacts are based on the assumption that standard measures for mitigating impacts of oil and gas activities would be utilized. These measures would include locating facilities and access routes to minimize disturbance, site rehabilitation, and avoidance of critical areas (such as sage grouse leks or raptor nests).

Impacts on Mineral Values

This alternative would have no adverse effect on oil and gas leasing, exploration, and development. These activities would proceed subject to standard multiple use management practices and regulations which include measures protecting watershed, wildlife, cultural, and visual resource values. It is not anticipated that development of mineral resources other than oil and gas would take place on the study area lands within the foreseeable future.

Impacts on Paleontological Resources

Destruction of paleontological resources resulting from energy resource activities could occur, but its significance is difficult to predict. Cultural resource clearance procedures might identify a large, obvious site but are unlikely to identify the small fossil remnants which are of particular value in this area. With more people using the area and increased ease of access, more unauthorized collecting activity would be expected.

Impacts on Realty and Access

This alternative would have no effect on access or land uses on state or private lands in or adjacent to the study area. It would not restrict any existing or future land use authorizations on federal land except as provided for under standard land use regulations.

ALL WILDERNESS ALTERNATIVE

The analysis of this alternative is based on the assumption that the pre-FLPMA oil and gas leases in the study area will expire before Congress makes a decision on designation or nondesignation of this area. It is also assumed that any exploration on these leases prior to congressional action will not result in discovery of producible energy resources and will not have significantly altered the natural character of the area. The rationale underlying these assumptions is based on the following points:

1. The last pre-FLPMA lease in the area will expire on September 1, 1986, unless drilling activity takes place before that date.
2. Congress will not receive the President's recommendation on this study area before September 1986.

3. The present rate and pattern of drilling activity in the study area vicinity make it very unlikely that more than one or two wells would be drilled on study area pre-FLPMA leases before September 1986.
4. Because it is highly unlikely that Congress would designate as wilderness an area containing producing oil or gas wells, consideration of the environmental consequences of a wilderness alternative would become moot should production occur in the area before congressional action.

Impacts on Wilderness Resources

Designation of the existing WSA as wilderness under this alternative would provide long term protection from activities that could significantly alter natural values. Natural ecologic processes would continue with little or no interference by man, except that livestock grazing (an allowable use under the Wilderness Act) could somewhat modify "natural" soil, water, and vegetation regimes.

Opportunities for primitive recreation and solitude would be protected on some parts of the area, but the presence of the two state sections along with the cherry-stem roads would make it impossible to insure that these opportunities could be provided on a substantial part of the area in the long term. Livestock grazing activity and vehicle use on the state sections or cherry-stems would have minimal impact because it would only intrude on a relatively small part of the WSA and because the activity would only take place during a few days or weeks each year. Conversely, the sights, sounds, and smells associated with oil and gas exploration or production on the state sections could be very apparent in much of the WSA. The impacts of exploration activity on the state sections would be primarily short term, but if production resulted, the effects would continue for many years.

If use and activity on the state sections and cherry-stem roads did not change appreciably from what it is now, the recreation opportunity spectrum classes would not change from the existing 9,510 acres of Semi-Primitive Motorized class and 7,640 acres of Semi-Primitive Nonmotorized class. If intensive development did take place, then the ROS classes could change to 3,150 acres of Roaded Natural class, 7,400 acres of Semi-Primitive Motorized, and 6,600 acres of Semi-Primitive Nonmotorized. An even greater reduction in the more primitive opportunity classes would occur if development in the state sections resulted in improvement and increased use of WSA boundary roads.

Bobcat Draw Badlands WSA

Impacts on Recreation

The adverse affects of this alternative on non-wilderness recreation would be minimal because most of the vehicle use associated with this activity takes place on the WSA boundary roads and cherry-stem routes. Only about half a dozen miles of vehicle trail that is currently usable would be closed, and present recreation use of these trails is almost nonexistent. By protecting scenic, wildlife, and paleontological values, this alternative might actually benefit the visitor who parks his vehicle at the boundary and walks a short distance into the area. Any vehicle-based use that was precluded could shift to other areas. The supply of opportunities for vehicle-based recreation in the Bighorn Basin far exceeds the demand.

Impacts on Visual Resources

Under this alternative the 17,150 acres of the WSA would be protected from activities which could degrade scenic values. This alternative would not, however, prevent development activities on the state sections from degrading visual quality on adjacent WSA lands.

Impacts on Watershed Resources

Restrictions on human activity, particularly oil and gas operations, in the WSA would benefit the watershed resource by minimizing surface disturbance and vegetative cover removal. Soil erosion caused by such activity would be eliminated, and water quality would be maintained by avoiding the possibility of increased sediment derived from disturbed areas. It is not expected that the level of recreation use of the area would be sufficient to produce any watershed impacts. Control of natural sediment loads by means of detention dams, water spreaders, and mechanical treatments would be precluded by wilderness designation, but no such structures are currently planned for the area.

Impacts on Livestock Grazing

As noted in Chapter III, the future of livestock grazing on these lands is difficult to predict. During the last year 88 percent of the WSA has not been used by livestock, and 66 percent of the area hasn't been used in several years.

Under wilderness designation, livestock grazing could continue to be authorized according to the principles of range management. Designation would not cause livestock removal or use reductions. Existing improvements could be maintained, using motorized equipment when necessary. New improvements could be constructed for resource protection purposes and to promote improved livestock management. Wilderness designation would not preclude predator control activities but could constrain the methods used. Motor vehicle access into the designated area could be allowed where necessary to permit continuation of existing grazing practices and for emergency purposes such as rescuing sick animals or the placement of feed in emergency situations. The cherry-stem roads would remain open for use.

Impacts on Wildlife

Wilderness designation restrictions on oil and gas activity and vehicle use would prevent wildlife habitat alteration and localized wildlife displacement. Displacement could still occur, however, in the vicinity of the two state sections. Anticipated levels of wilderness recreation use should not adversely effect wildlife. If such effects did occur, they could be mitigated by implementing visitor use regulations.

Impacts on Mineral Values

This alternative would effectively preclude mineral exploration and development activity on the 17,150 acres designated as wilderness. Exploration and development on the two state sections could occur under the provisions of the state leases. The amount of oil and gas production, if any, that would be forgone under this alternative is unknown and probably could not be determined without seriously degrading wilderness values. If oil or gas is present beneath the area, some of it might be extracted by means of drainage to wells located outside the designated area. This would allow utilization of the energy resource, but it could create legal problems relating to lease rights and royalties. Development of other minerals would also be precluded, but this restriction would have no effect because of the low potential for these minerals.

Impacts on Paleontological Resources

Paleontological resources in the WSA would be protected from surface disturbing activity. The increased management presence and the access limitations associated with wilderness designation would also serve to enhance protection from unauthorized collecting.

Bobcat Draw Badlands WSA

Impacts on Realty and Access

Land uses on the state sections would not be restricted under this alternative, and access would be provided. However, this access would probably be restricted to a single corridor located to minimize impacts on wilderness values. It is not anticipated that wilderness use and management of the WSA would have any adverse effects on state or private lands located outside the area boundaries.

CONFLICT REDUCTION ALTERNATIVE

The analysis of this alternative is based on the same assumptions regarding pre-FLPMA oil and gas leases used in the All Wilderness Alternative analysis. It also assumes that any exploration on the lands added to the WSA under this alternative will not result in discovery of producible energy resources and will not significantly alter the natural character of the area prior to congressional action.

The effects of this alternative on watershed, wildlife, and paleontological resources would be essentially the same as under the All Wilderness Alternative. Benefits to these values would simply be extended to the additional area included under this alternative, and the potential for adverse affects resulting from development on the state sections would be reduced.

Impacts on Wilderness Resources

This alternative would enhance the protection of wilderness values and result in designation of an area that would be much more easily managed than that included under the All Wilderness Alternative. Protection of natural character would be extended to the lands added under this alternative. The threat that development on the state sections would degrade solitude and primitive recreation opportunities would be largely eliminated, although exercise of valid existing rights on the state sections might have some short term effects. Limiting vehicle use on the cherry-stem routes to that specifically authorized would eliminate the impacts that random casual use of these routes could have. Under present management, the lands covered by this alternative offer 10,275 acres of Semi-Primitive Motorized and 8,265 acres of Semi-Primitive Nonmotorized recreation opportunity. The protection of wilderness values provided under this alternative would change these opportunities to 8,710 acres of Semi-Primitive Motorized class and 9,830 acres Semi-Primitive Nonmotorized. This alternative thus would provide approximately 2,200 more acres of Semi-Primitive Nonmotorized class opportunities (the class most compatible with "wilderness quality" solitude and primitive recreation).

Impacts on Recreation

This alternative would extend the vehicle use restrictions involved in the All Wilderness Alternative by closing off vehicle access on the state sections and by closing the cherry-stem roads to recreation vehicle use. Less than five miles of additional route closures would occur. The significance of these restrictions would be minimal, due to the low level of existing use and the ready availability of this type of opportunity on other public lands in the Bighorn Basin.

Impacts on Visual Resources

Under this alternative, 18,540 acres would receive visual resource management Class I rating, and the threat that visual values could be impaired by development on the state sections would be largely eliminated.

Impacts on Livestock Grazing

The lands added to the WSA under this alternative have not been used by livestock during the past year; those in the northernmost state section have not been used for several years. The effects that inclusion of these lands in a wilderness designation would have on livestock grazing, assuming such use resumes, would be minimal. Effects on the northernmost state section should be insignificant because the terrain limits vehicle access. On the southern state section, vehicle access for winter sheep camps and supplemental feeding could be allowed if required to maintain established use. A change in class to cattle might reduce conflicts, depending on the season of use. Restrictions on use of the cherry-stem roads should not adversely affect livestock operators, since access required for livestock management could continue to be authorized.

Impacts on Mineral Values

In the short term, this alternative would have essentially the same impacts on mineral leasing, exploration, and development as the All Wilderness Alternative. Activity on the lands within the WSA would be precluded, but unless Congress makes other provisions, valid existing rights conferred by state mineral leases on the two state sections probably could be exercised. However, once those leases (which normally run for 10 years) expire, new leases would not be issued, and mineral activity on the exchanged state sections would be precluded.

Impacts on Realty and Access

Under this alternative, the two state sections and the associated mineral rights would be acquired by exchange from the state of Wyoming. Unless other arrangements were provided for by Congress, any state mineral or grazing leases on these sections would be recognized as valid existing rights. Rights to mineral resources could be exercised subject to measures designed to mitigate impacts on other resource values. Because grazing use on these state lands is integrated with that on the surrounding federal lands, exercise of state grazing rights should not be significantly affected.

WILDERNESS MANAGEABILITY ALTERNATIVE

The analysis of this alternative is based on the same assumptions regarding pre-FLPMA oil and gas leases and activity on the two state sections used in the Conflict Reduction Alternative analysis.

The effects on recreation, visual resources, watershed, wildlife, and paleontological resources would be essentially the same as under the Conflict Reduction Alternative. These effects would simply be extended to the 3,900 acres of land in Paradise Alley which would be included in a wilderness designation under this alternative.

Impacts on Wilderness Resources

During the wilderness inventory phase, Paradise Alley was identified as having all the attributes required for identification as a WSA except that it did not meet the requirement of being at least 5,000 acres in size. It was excluded from the WSA when the route that separates it from the area (and which forms the southern boundary) was determined to meet the inventory criteria used to define a road. This determination was based on the fact that some blade work had been done on portions of the route combined with public input received to the effect that the route was still being maintained and used. In the four years since the inventory, the western portion of this route has continued to receive limited use for livestock management, but it is located on a flat ridgetop and requires no maintenance. There is no evidence that the eastern portion of the route has received use or maintenance, and this segment which drops through the badland breaks is now almost impassable. This route does not significantly affect the natural character of the area. Closed to vehicle use, it would have no adverse effects on solitude or primitive recreation opportunities.

This alternative would maximize the study area's capability to provide primitive recreation opportunities. Under wilderness management, these lands would offer 12,010 acres of Semi-Primitive Nonmotorized and 10,430 acres of Semi-Primitive Motorized recreation opportunities—a pattern of ROS ratings that is highly compatible with provision of a quality wilderness recreation experience. The presence in Paradise Alley of some of the region's most spectacular badland features would also serve to enhance the primitive recreation values that would be protected under this alternative.

Impacts on Livestock Grazing

Paradise Alley is within the portion of Allotment 0604 that has not been used during the past year. If grazing of livestock on this area resumes, the primary effect of including Paradise Alley in a wilderness designation would be the restriction of vehicle access on the western portion of the road that presently serves as the southern WSA boundary. This restriction would not apply, however, to access required to maintain grazing practices established in the area at the time of designation.

Impacts on Mineral Values

This alternative would have essentially the same impacts on mineral leasing, exploration, and development as the Conflict Reduction Alternative. It would, however, add an additional 3,900 acres to the area on which mineral activity would be excluded. All the oil and gas leases on this additional acreage are post-FLPMA leases containing the wilderness protection stipulation. They do not confer a right to develop the lease in the event that the lease lands are included in a wilderness designation.

Impacts on Realty and Access

The lands in Paradise Alley are all public lands with no use authorizations in effect other than those associated with livestock grazing activity and facilities. Adoption of this alternative would result in a designation boundary abutting private and state lands. Access to these private and state lands would not be affected, and it is not anticipated that wilderness use or management would have any adverse effects on these tracts.

Paradise Alley, potential addition to Bobcat Draw Badlands Area

SHEEP MOUNTAIN

NO WILDERNESS ALTERNATIVE (Proposed Action)

Impacts on Wilderness Resources

This study area has retained its natural character because of its rugged terrain, low value for livestock grazing, and the difficulty and cost of exploring for oil and gas in the deep structures underlying the area. In the last few years, however, it has become technologically and economically feasible to drill for oil and gas in areas such as this. For this reason, oil and gas exploration appears to be the primary threat to the maintenance of wilderness values under this alternative. No other activities are anticipated which would significantly effect wilderness character.

The degree of impact that oil and gas activity would have on natural character would depend on its type, location, and extent. The type of structures underlying the area are such that a number of wells would need to be drilled to test them adequately. These wells would be scattered over the area, and most of the access would follow the larger drainages. Mitigation and rehabilitation measures would limit the impacts of this exploration, but would not be adequate to maintain wilderness-quality natural character. If exploration resulted in production and field development, natural character of the involved portion of the area would be heavily altered. Wells, roads, pipelines, powerlines, and other facilities would dominate the scene.

Oil and gas activities also would degrade opportunities for solitude and primitive unconfined recreation. Both the actual activity and the increased access that would be developed would reduce opportunities for solitude. Primitive recreation opportunities would be lost in proportion to the effects on natural character. The existing Semi-Primitive Nonmotorized recreation setting would be replaced with a setting that would probably classify as Roaded Natural or Rural under the ROS system.

Because of the number of wells that would be drilled and the amount of work that would be required to provide access to the well sites, the impacts of oil and gas exploration would be long term even if the activity itself occurred over a relatively short period. Production and field development would extend the duration of intensive activity and increase the alterations to natural character that would have long term effects.

Impacts on Recreation

Opportunities for vehicle-based recreation could be enhanced under this alternative, if oil and gas exploration increased access but did not reach a level such that the recreation resource base (wildlife, scenic values, etc.) would be degraded. Intensive oil and gas activity could make the effected portions of the area unsafe or unsuited for recreation use. An off-road vehicle designation limiting vehicle use to existing roads and trails would be instituted under this alternative. The terrain in most of the areas already limits the use of four-wheeled vehicles to existing trails, and dirt bike use in the area is virtually nonexistent so the practical effect of this ORV designation would be minimal.

Impacts on Visual Resources

Oil and gas development would have the potential to degrade scenic values in the area. Oil and gas related surface disturbances and facilities would contrast with the existing natural character of the landscape. Measures designed to mitigate these impacts would be applied and could reduce the degradation of scenic resources, but these measures would not be adequate to maintain visual quality under any substantial level of exploration or development.

Impacts on Watershed Resources

The oil and gas exploration and development expected to occur would affect watershed values. The fact that the terrain in this area would tend to force most access routes to follow drainages would increase the potential for adverse impacts from such activity. Surface disturbance and removal of vegetative cover would accelerate erosion in these fragile soils. Increased sediment loads could be expected to affect water quality, and treatment water discharges, if any, would increase salinity. These sediment load and salinity effects would not significantly increase existing water quality problems for downstream use, but they would be inconsistent with efforts to improve water quality in the Bighorn drainage.

Mitigation measures could reduce these impacts to some extent. Disturbed areas would be recontoured and reseeded, but the fragile soils and lack of precipitation in the area would limit the success of these efforts. Discharged waters would be required to meet state of Wyoming effluent standards but would still be highly saline.

Impacts on Livestock Grazing

Under this alternative existing grazing practices would continue within the requirements of range management regulations. Increased access availability resulting from mineral exploration would have only a very limited beneficial effect because of forage availability, and it is unlikely that there would be significant conflicts between livestock use and oil and gas exploration and development.

Impacts on Wildlife

Oil and gas exploration and production would have the potential to adversely affect wildlife. The degree of impact would depend on the level of activity. Impacts would be in the form of destruction of habitat as well as local displacement or disturbance of populations.

Construction of access routes and other facilities in drainage bottoms would affect some of the most productive habitat. It also could tend to displace populations to marginal habitat locations. Activities located adjacent to water sources could be especially damaging during hot weather months. The application of standard wildlife protection mitigation measures would limit, but not eliminate, these impacts.

Impacts on Mineral Values

This alternative would have no adverse effect on oil and gas leasing, exploration, or production. These activities could proceed subject only to the standard management practices and mitigation measures that apply on all public lands. It is not expected that development of mineral resources other than oil and gas would take place within the study area in the foreseeable future.

Impacts on Paleontological Resources

Energy resource exploration and development activities could adversely affect paleontological resource values. Surface disturbance could destroy sites that might not be identified by clearance procedures designed to identify and protect cultural resource locations. Improved access to the area could also result in an increased level of unauthorized collecting activities.

Sheep Mountain WSA

Impacts on Realty and Access

This alternative would have no effect on access or land uses on state or private lands in or adjacent to the study area. It would not restrict existing or future land uses on federal land except as provided for under standard land use regulations.

ALL WILDERNESS ALTERNATIVE

The analysis of this alternative is based on the assumption that the pre-FLPMA oil and gas leases in the study area will expire before Congress makes a wilderness designation or nondesignation decision. It is also assumed that any exploration of these leases prior to congressional action will not result in discovery of producible energy resources and will not significantly alter the natural character of the area. The rationale underlying these assumptions has been explained in the Bobcat Draw Badlands analysis.

Impacts on Wilderness Resources

Wilderness designation of the lands included in the WSA would largely protect their natural character. An exception to this protection status could arise on parts of the designated area adjacent to the split-estate section, because this alternative would not affect the state mineral leases on that section. Exploration for oil and gas on this section would be almost certain to occur (closing the surrounding WSA lands to exploration would actually encourage it), and a route of access would have to be provided. The topography of the area is such that this access would have to follow one or both of the drainages of Elk Creek that lead into the split-estate section from the southeast. This access together with the development on the split-estate section would create an area obviously modified by man's activity which would be quite visible from adjacent designated lands.

Activity on the finger of non-WSA land would also affect natural character on adjacent designated lands. This would be particularly true in the wide drainage of Dry Cottonwood Creek where visual screening is entirely lacking. A combination of developments on this finger and on the split-estate section would virtually isolate the southeast corner of the WSA from the remainder of the unit. While it is possible that these threats to natural character would not materialize or that they would be of short duration, it is at least as probable that they would have a significant effect. If they do materialize, there would be virtually nothing that could be done under this alternative to insure protection of wilderness values.

On the portions of the WSA where natural character would be protected under this alternative, opportunities for primitive recreation and solitude would also be protected. These values could be lost, however, on lands adjacent to the finger of excluded land, the cherry-stem roads, or the split-estate section, and its access routes. Activities on these lands would have the potential to substantially alter the opportunities for primitive recreation and solitude. As noted in Chapter III, the WSA presently offers 10,435 acres of Semi-Primitive Nonmotorized and 11,360 acres of Semi-Primitive Motorized recreation opportunity. Activity and developments on the split-estate section, the cherry-stem roads, and the finger of excluded land could change these opportunities to 7,600 acres of Semi-Primitive Nonmotorized and 14,195 acres of Semi-Primitive Motorized or Roaded Natural recreation opportunity. This change would represent a significant loss of the class of opportunity that is most compatible with wilderness recreation and solitude experiences.

Impacts on Recreation

Because the boundary and cherry-stem roads that provide access would still be available for use, this alternative should have little impact on nonwilderness recreation. By protecting the resource base, this alternative could actually enhance opportunities for use originating from these access points. Virtually no access routes that are currently passable for a four wheel vehicle would be closed to use under this alternative.

Impacts on Visual Resources

If Congress adopted this alternative, the 22,210 acres that would be designated as wilderness would be placed in a visual resource management Class I category. This classification would serve as a tool to protect the scenic quality and natural character of the landscape consistent with wilderness management requirements. Visual resource management techniques would be used to mitigate the impacts of oil and gas activity on the split-estate section, but this activity would still cause highly visible alterations of the natural landscape.

Impacts on Watershed Resources

Restrictions on human activity, particularly oil and gas operations in the WSA, would limit surface disturbance and vegetative cover removal. Soil erosion caused by such activity would be eliminated, and water quality would benefit by avoiding the possibility of increased sediment derived from disturbed areas and salinity from produced water. It is not expected that the level of recreation use of the area would be sufficient to produce any watershed impacts. Control of natural sediment loads by means of detention dams, water spreaders, and mechanical treatments would be precluded by wilderness designation, but no such structures are currently planned for the area.

Impacts on Livestock Grazing

Under this alternative, livestock grazing would continue largely unchanged from past use levels and patterns. Forage availability would continue to be the primary limiting factor. Wilderness designation would not cause livestock removal or reduction below existing use levels. Existing improvements could be maintained, and new facilities could be installed to promote improved livestock management or to enhance resource protection. Predator control activities could be authorized, but the methods used would be limited. Vehicle use on the cherry-stem roads and boundary routes would not be restricted, and motor vehicle access into the designated area could be authorized for emergency livestock management and where required to allow existing grazing uses to continue.

Impacts on Wildlife

Restrictions on oil and gas activity and vehicle use under this alternative would preclude habitat disruption and wildlife displacement on most of the designated area. Some habitat disruption and localized population displacement could still occur as a result of development activity on the split-estate section or in the finger of excluded land. Any adverse effects on wildlife that might result from wilderness recreation use could be mitigated by implementing appropriate visitor use regulations.

Impacts on Mineral Values

This alternative would preclude mineral leasing exploration and development activity on 22,210 acres. Because of the low potential for minerals other than oil and gas, the only practical effect of this restriction would be related to oil and gas values. The amount of oil and gas production that would be foregone, if any, is unknown and could not be determined without drilling a number of wells in the area. If oil and gas is present beneath the area, some of it might be extracted by drainage to wells located outside the area or on the split-estate section. While this would allow utilization of the produced resources, it could create problems relating to lease rights and royalties.

Impacts on Paleontological Resources

Paleontological resources in the WSA would be protected from the impacts of surface disturbing activities. The increased management presence associated with wilderness designation also would serve to enhance protection from unauthorized collecting.

Impacts on Realty and Access

Land uses on the designated lands would be restricted to those that would be consistent with preservation of wilderness values. Access would have to be provided to allow operations on the state mineral leases on the split-estate section, but restrictions on the route and type of access could be imposed to mitigate the impact on wilderness values. It is not anticipated that wilderness use and management of the designated lands would have any adverse effects on the state or private lands located adjacent to the area boundaries.

CONFLICT REDUCTION ALTERNATIVE

The analysis of this alternative utilizes the same assumptions regarding pre-FLPMA oil and gas leases as were used in considering the All Wilderness Alternative. It also assumes that any exploration for oil and gas on the split-estate section that

Sheep Mountain WSA

might occur prior to congressional action will not have resulted in discovery of producible energy resource and will not have significantly altered the natural character of the area.

The benefits and/or adverse effects of this alternative on watershed, wildlife, and paleontological resources would be essentially the same as those identified in the analysis of the All Wilderness Alternative. The effects projected in that discussion would simply apply to a smaller land area under this alternative.

Impacts of Wilderness Resources

This alternative reduces the area recommended for wilderness designation by early 35 percent in comparison with the acreage covered by the All Wilderness Alternative, but it would result in an area that would be much more manageable as wilderness. Acquiring the mineral rights to the split-estate section from the state of Wyoming would largely eliminate the threat that developments on that section would degrade wilderness values. Relocation of the southern boundary would make the Elk Creek and Tatman Mountain cherry-stem roads part of the external boundary of the area and would reduce the potential for conflicts resulting from activities in the finger of nonwilderness land. Locating most of the revised southern boundary along either the crest of a major drainage divide or along existing roads, would make it easy to identify on the ground.

The area recommended for designation under this alternative would be a solid block of land with no nonwilderness inholdings. It should be relatively easy to manage this block to protect natural character and provide opportunities for primitive recreation and solitude. It is anticipated that under wilderness management the lands included could provide 7,000 acres of Semi-Primitive Nonmotorized, 7,125 acres of Semi-Primitive Motorized, and 415 acres of Roaded Natural recreation setting opportunity.

The WSA lands not recommended for designation under this alternative could lose their wilderness values over time since they would be open to oil and gas exploration activity. The extent of change would depend on the level of activity and whether or not mineral production resulted.

Impacts on Recreation

The impacts of this alternative on nonwilderness recreation use would be very similar to those of the All Wilderness Alternative. Initially, no vehicle access would be available under this alternative that would not be available under the All Wilderness

Alternative. If oil and gas exploration opened up new access routes in the portion of the WSA excluded from designation, there might be some increase in vehicle based recreation opportunities. On the other hand, intensive oil and gas activity could degrade scenic and wildlife resources on these lands to an extent that there would be a net loss of recreation opportunities.

Impacts on Visual Resources

The portion of the area included in a wilderness designation under this alternative would be assigned a visual resource management Class I rating and would maintain its existing natural character. The portion excluded from designation would retain its Class III visual resource management rating and would be affected in the same way that it would be under the No Wilderness Alternative.

Impacts on Livestock Grazing

On the portion of the area recommended for designation under this alternative, livestock use and management would proceed as described in the All Wilderness Alternative discussion. On the portion excluded from designation, existing grazing practices would continue within the requirements of range management regulations.

Impacts on Mineral Values

Mineral leasing, exploration, and production activity would generally be precluded on the 14,540 acres recommended for wilderness designation under this alternative. The only exception to this restriction would be that if Congress did not provide for acquisition of rights created by the state oil and gas lease on the split-estate section, there would be a valid existing right to explore and develop the lease. If development of the lease did not occur, it would normally expire ten years after issuance, and a new lease would not be issued. On the portion of the area excluded from designation, oil and gas leasing, exploration, and development activity could proceed subject only to the standard management practices and mitigation measures that apply to all public lands.

Impacts on Realty and Access

Under this alternative, the mineral rights to the split-estate section would be acquired from the state of Wyoming. Unless Congress provided other arrangements, state leases on these rights would be recognized as valid existing rights. Only about two miles of the boundary of the area recommended for designation under this alternative abuts private land, and access and use of these private lands would not be impaired.

WILDERNESS MANAGEABILITY ALTERNATIVE

The analysis of this alternative utilizes the same assumptions regarding pre-FLPMA leases and split-estate mineral rights that were used in considering the Conflict Reduction Alternative.

The benefits and/or adverse effects on watershed, scenic, wildlife, and paleontological resources would be essentially the same as under the All Wilderness Alternative except that potential threats posed by the possibility of development on the split-estate section or the finger of non-WSA land would be avoided.

Impacts on Wilderness Resources

This alternative would maximize the preservation of wilderness values of the study area. It recommends wilderness designation for 23,800 acres, and this acreage would be in a solid block with no nonwilderness inholdings or internal projections of excluded lands. Wilderness manageability would be further enhanced by limiting access on the cherry-stem roads in the area to specifically authorized uses; this would eliminate the impacts of random casual vehicle use.

The primary benefit to wilderness values derived from this alternative compared with the All Wilderness Alternative is that it resolves the potential problems associated with the split-estate section, the finger of excluded land, and the cherry-stem roads, by incorporating both tracts in the area proposed for designation and restricting use on the cherry-stem roads. The Conflict Reduction Alternative proposed dealing with the same potential conflict by incorporating the split-estate section in a designation, and dealt with the excluded finger and two of the cherry-stem roads by a boundary relocation that would greatly reduce the area afforded wilderness protection.

Although this alternative only recommends an additional 1,800 acres for designation as compared with the All Wilderness Alternative, it would provide a dramatic increase in the capability of the area to provide quality primitive recreation and solitude opportunities. Under this alternative, 12,520 acres of Semi-Primitive Nonmotorized recreation setting opportunity could be maintained. This is nearly 5,000 acres more of this setting class than could be maintained under either the All Wilderness or the Conflict Reduction Alternatives.

Impacts on Recreation

By closing the cherry-stem roads and the roads creating the finger of non-WSA land to recreation vehicles, this alternative would make unavailable for recreation vehicle use approximately eight miles of access routes that now receive at least some recreation activity. Vehicle access to the Elk Creek and Dry Cottonwood drainages would be substantially restricted. The significance of this localized effect would be minimal because essentially the same vehicle-oriented recreation opportunities are available on other public lands in the vicinity.

Impacts of Livestock Grazing

The effects on livestock grazing under this alternative would be similar to those identified for the All Wilderness Alternative. The only difference would occur in the Dry Cottonwood Creek drainage. This alternative would restrict vehicle use of the two roads leading up this drainage to that use specifically authorized as necessary for continuation of established grazing uses or for emergency stock management.

Impacts on Mineral Values

Mineral leasing, exploration, and development would generally be precluded on the 23,800 acres recommended for wilderness status under this alternative. As discussed in the Conflict Reduction Analysis, there might be a partial exception to allow for the exercise of valid existing rights created by state mineral leases on the split-estate section. The amount of oil and gas production, if any, that might be foregone under this alternative is unknown.

Impacts on Realty and Access

Under this alternative, the state mineral rights to the split-estate section would be acquired from the state of Wyoming. Unless Congress provides other arrangements, state leases on these rights would be recognized as valid existing rights. It is not anticipated that wilderness use and management would have any adverse effects on the state or private lands located adjacent to the boundaries of the designated area.

Sheep Mountain WSA

RED BUTTE

NO WILDERNESS ALTERNATIVE (Proposed Action)

Impacts on Wilderness Resources

Not designating the study area would have short and long term impacts on wilderness resources values. Under this alternative, the potential is high that oil and gas exploratory drilling would occur in the area.

If this exploration were limited to two or three wells and no production resulted, the degradation of natural character would be minimal. The impacts of this activity could be mitigated by operating procedures and lease stipulations designed to protect watershed, wildlife, and visual resource values. As the number of wells increased, the cumulative impact of the surface disturbance caused by well sites and access roads would reach the point where the area could no longer be said to appear to have been affected primarily by the forces of nature. If production and field development followed exploration, the natural character of the area could be lost. Facilities associated with field development (such as, operating wells, access roads, pipelines and powerlines) would replace the natural character of the area with a setting that would have an almost industrial character.

Opportunities for solitude or primitive unconfined recreation would also be degraded by oil and gas activity. The effects on natural character and the increased access resulting from exploration activity could change the existing 4,598 acres of Semi-Primitive Nonmotorized recreation opportunity to either a Semi-Primitive Motorized or a Roaded Natural ROS classification, depending on the extent of activity. Production and field development would change opportunities on the area involved to the Roaded Natural class and could substantially degrade the scenic and wildlife recreation resource base. Opportunities for solitude would be eliminated within sight and sound of exploration or production activity.

If oil and gas activity consists of nothing more than the drilling of two or three dry wells, the impacts would be short term, and reclamation efforts could possibly be successful enough to reverse the limited impacts. Extensive exploration or production activity would irreversibly alter the wilderness character of the study area.

Impacts on Recreation

This alternative would have little impact on the existing pattern of vehicle-oriented recreation use. This use is largely limited to the periphery of the area by the terrain and lack of access routes. A planned off-road vehicle designation limiting vehicle use to existing roads and trails would maintain this pattern. Oil and gas activity might change the situation by developing new access, but any resulting recreation benefit could be offset by oil and gas activity impacts on the scenic and wildlife resources that attract recreation use.

Impacts on Visual Resources

The study area would remain in a visual resource management Class IV. This management class allows for activities or developments that create a relatively strong visual contrast with the existing landscape. Measures, such as site location and painting of facilities to blend with the natural colors of the landscape, would be used to mitigate the visual impacts of oil and gas exploration activities or other developments. These techniques could maintain scenic quality under a low to moderate level of activity, but could only slightly mitigate the effects of intensive exploration or development.

Impacts on Watershed Resources

Surface disturbing activities, such as oil and gas operations, on the fragile soils of this area could cause increased soil erosion which in turn would degrade water quality by increasing sediment loads. Any produced water from treatment facilities discharged into surface drainages would tend to increase existing salinity levels. These sediment and salinity increases would not significantly increase existing downstream water quality problems, but they would be inconsistent with water quality improvement efforts.

These impacts could be partially mitigated. Regulations require recontouring and reseeding disturbed areas, but fragile saline soils and limited precipitation limit the chances that such reclamation efforts would be effective. In some locations structural and mechanical treatments could be used to control erosion and reduce sediment loads. Any discharged water must meet standards set by the Wyoming Department of Environmental Quality.

Impacts on Livestock Grazing

The only potential for adverse effects on livestock grazing under this alternative would be associated with the unlikely possibility that oil and gas operations might reach a level that would create conflicts with grazing. Grazing management could benefit slightly from increased access resulting from mineral exploration. Existing grazing practices would continue within the requirements of range management regulations. The maintenance of existing range improvements and construction of new ones would be unaffected.

Impacts on Wildlife

Impacts of this alternative on wildlife would be dependent on the intensity, duration and frequency of energy related activity and the public activity that would utilize new access routes. Localized disturbance and displacement of wildlife would occur and acreage of effective habitat and carrying capacities in the study area would decrease with increased activity.

Big game habitat loss would result from construction of new roads, pipelines, drill pads, motor vehicle use and associated human activity. Big game (mule deer and antelope) losses would not be significant to overall herd unit populations, but localized seasonal population distribution could be altered. No significant impacts to game birds are expected under this alternative, although use of reservoir water for energy activities or oil spills could adversely affect waterfowl and game birds in isolated cases. Furbearer populations could be reduced if improved access opens the area to more intensive trapping.

These limited expectations for wildlife impacts are based on the assumption that standard measures for mitigating impacts of oil and gas activities would be utilized. These measures would include locating facilities and access routes to minimize disturbance, site rehabilitation, and avoidance of critical areas (such as sage grouse strutting grounds or raptor nests).

Impacts on Mineral Values

This alternative would have no effect on oil and gas exploration, leasing and development. These activities could proceed as on adjacent lands, subject to existing multiple use management practices and regulations. This would also apply to any other type of mineral exploration and development activity, including the location of

Red Butte WSA

mining claims. It is not anticipated, however, that development of mineral resources other than oil and gas would take place on study area lands within the foreseeable future.

Impacts on Paleontological Resources

Destruction of paleontological resources resulting from oil and gas exploration and development could occur, but its significance is difficult to project. Cultural resource inventory procedures might identify a large, obvious locality but are unlikely to identify the small vertebrate fossil sites which are of particular importance in this area.

Impacts on Realty and Access

This alternative would have no effect on access or land uses and would not restrict any existing or future use authorizations except as provided for under standard land use regulations.

ALL WILDERNESS ALTERNATIVE

The analysis of this alternative is based on the assumption that the pre-FLPMA oil and gas leases in the study area will expire before Congress makes a decision on designation or nondesignation. There is also an assumption that any exploration on these leases prior to congressional action will not result in discovery of produceable energy resources and will not significantly alter the natural character of the area. The rationale underlying these assumptions was explained in the Bobcat Draw Badlands discussion.

Impacts on Wilderness Resources

The designation of this study area as wilderness would have a short and long term beneficial impact on wilderness resource values. The natural character of the designated lands would be protected and natural processes would continue with little or no interference by man. Livestock grazing (an allowable use under the Wilderness Act) could somewhat modify soil, water and vegetation regimes.

Opportunities for primitive recreation and solitude would be protected in the core of the area by the maintenance of natural character but could be degraded on a substantial portion of the area's periphery by developments occurring outside the area. In the western third of the WSA the terrain rises from flat drainage bottoms to the Red Butte ridge. Any activity located near the western WSA boundary would be very apparent from this portion of the study area. Similarly, an area where oil and gas development is currently taking place, located about one to two miles northeast of the WSA, is quite visible from the bench lands along Fivemile Creek in the WSA. In short, developments or activities adjacent to the study area could degrade solitude and primitive recreation opportunities regardless of wilderness designation.

The presence of the two cherry-stem roads and the reservoirs to which they provide access make the naturalness of the adjacent lands marginal. Existing activity on these routes does not significantly affect primitive recreation or solitude, but this use in combination with activity that might occur on nearby lands outside the study area could become significant in the future.

Impacts on Recreation

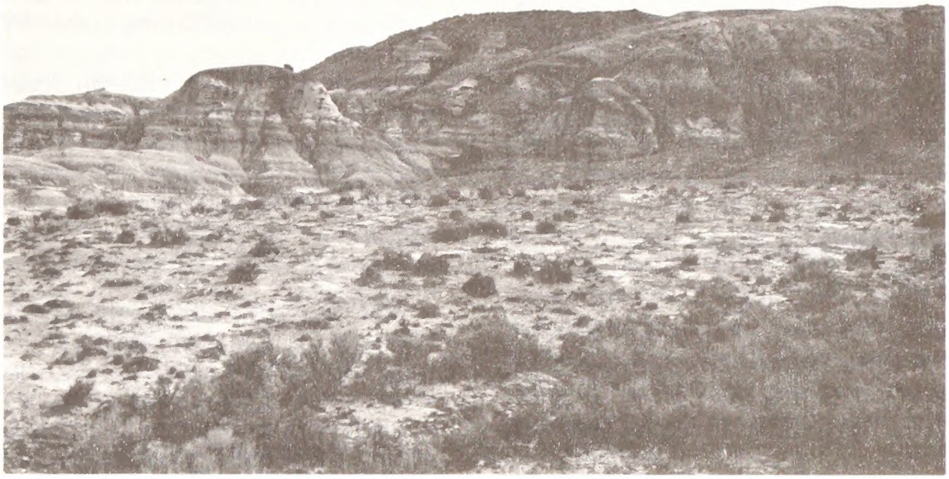
This alternative would close less than a mile of existing passable vehicle trail to motorized use, so no significant loss of nonwilderness recreation opportunity would occur. By protecting scenic, wildlife, and paleontological values this alternative could enhance opportunities for recreation visitors who would use vehicles along the area boundaries.

Impacts on Visual Resources

Under this alternative 10,910 acres of the WSA would receive a visual resource management Class I rating, restricting most visual modifications within the WSA to natural ecological changes. However, developments outside the area would be visible in the near middleground distance from many points in the WSA and could substantially degrade the scenic value of the landscape.

Impacts on Watershed Resources

Prohibiting oil and gas operations and associated activities would protect soils from accelerated erosion due to soil disturbance and vegetation removal. Water quality effects of increased sediment from disturbed areas and increased salinity from produced water would be avoided. Natural sediment loads delivered to downstream waters could not be controlled within the WSA due to restrictions on detention dams, water spreaders and mechanical treatments, but no such structures are currently planned for the area.



Red Butte WSA

Impacts on Livestock Grazing

Under this alternative livestock grazing could continue to be authorized according to the principles of range management. Designation would not cause livestock removal or use reductions. Records of livestock use based upon the last three years show that active grazing use averaged only 40 percent of the allowable preference use for the two allotments that make up the study area. Future livestock grazing use in this area will most likely follow this past use trend.

Existing livestock improvements could be maintained, using motorized equipment when necessary. New improvements could be constructed to promote improved livestock management or to enhance resource protection. Wilderness designation would not preclude predator control activities but would constrain the methods used. Motor vehicle access into the designated area would only be allowed for emergency purposes, such as rescuing sick animals or the placement of feed in emergency situations, or where such use was required to maintain existing grazing activity. This restriction would not apply to the cherrystem roads which would remain open for use under this alternative.

Impacts on Wildlife

Wildlife would benefit from wilderness designation primarily because oil and gas activity and vehicle use in the area would be precluded. This would prevent wildlife habitat alteration and wildlife displacement. Anticipated levels of wilderness recreation use should not significantly affect wildlife. If such effects did occur, recreation use would be regulated through visitor use restrictions.

Impacts on Mineral Values

This alternative would preclude any mineral leasing, exploration and development on the 10,910 acres of the study area. If oil or gas is present beneath the area, some of it might be extracted by drainage to wells located outside the area. The amount of oil or gas production that might be foregone under this alternative cannot be estimated without conducting drilling operations in the area.

Impacts on Paleontological Resources

Paleontological resources in the WSA would be protected from disturbances caused by oil and gas activity. The increased management presence and the access limitations associated with wilderness designation would also serve to enhance protection from unauthorized collecting.

Impacts on Realty and Access

There would be no impact on state or private lands or mineral estate. It is not anticipated that wilderness use and management of the WSA would have any adverse effects on state mineral rights on the split-estate land located adjacent to the study area boundary.

WILDERNESS MANAGEABILITY ALTERNATIVE

The analysis of this alternative is based on the same assumptions regarding pre-FLPMA oil and gas leases used in the All Wilderness Alternative analysis.

The adverse effects and benefits of this alternative on virtually all resources and uses would be the same as those identified for the All Wilderness Alternative. Those effects or benefits would simply apply to 660 fewer acres under this alternative.

Impacts on Wilderness Resources

The wilderness inventory identified the road leading to the North Fork Detention Dam along with the Twin Pockets Reservoir and its access route as cherry-stems rather than part of the external boundary, because at that time most of Section 16, T. 49 N., R. 95 W. was part of the WSA. The December 30, 1982, decision of the Secretary of Interior resulted in Section 16 being dropped from the WSA because the mineral rights on that section are owned by the state of Wyoming. With that section open to motorized activity and development it would not be possible to manage the lands between that section and the two cherry-stems to protect their natural character and ability to provide primitive recreation and solitude opportunities. Under this alternative the requirement to attempt to manage them to protect wilderness values would be eliminated.

This alternative would open 660 acres to activities such as oil and gas exploration that would be protected under the All Wilderness Alternative, but since the reservoirs and cherry-stem roads already affect this part of the area the practical effect on natural values would be minimal. Similarly, the opportunities for solitude and primitive recreation on these particular tracts are already marginal. Impacts on solitude and primitive recreation on adjacent WSA lands resulting from activity on this area also would not differ significantly from those that would occur under the All Wilderness Alternative.

Red Butte WSA

McCULLOUGH PEAKS

NO WILDERNESS ALTERNATIVE (Proposed Action)

Impacts on Wilderness Resources

If the McCullough Peaks is not designated as wilderness, most uses and management activities would continue much as they have in the past. Livestock grazing use patterns are well established with little potential for substantial change. Lands actions (such as rights-of-ways or land entries) are essentially precluded by the topography, and there are no plans for development of wildlife or watershed management facilities that would affect wilderness values. Those uses have not significantly affected wilderness character in the past and are unlikely to do so in the future.

The exception to this pattern of continuation of the status quo would arise from oil and gas exploration activity. The area's potential for oil and gas, improved drilling technology, and expected market conditions all suggest that exploration activity in the area could increase. Geophysical exploration has occurred in the past and could be managed in the future to insure that it would have only minimal, short term affects on wilderness values. Drilling of oil and gas wells would be another matter. In the McCullough Peaks terrain, drilling operations would require the construction of good quality access roads. The combination of drill site and access development would have major short term impacts on natural character and solitude. In the long term, the study area as a whole might be able to absorb the impacts of a handful of exploratory wells (depending on their location and the success of reclamation efforts), but the disturbance associated with drilling a number of wells would permanently degrade natural character. The facilities and long term activity associated with production of any successful wells also would be incompatible with maintenance of wilderness values.

Impacts on Recreation

Nonwilderness recreation use would not change appreciably from what it is now. Existing boundary roads and any additional routes developed for oil and gas exploration would be used to provide vehicle access for sightseeing, hunting, and rock hounding. If intensive oil and gas development does occur, it could degrade the scenic and wildlife recreation resource base and reduce the recreation opportunities available. Such effects would be localized to the lands immediately surrounding the intensive activity, however, and would be unlikely to affect the entire study area.

Impacts on Visual Resources

The study area would retain its Class II visual resource management rating. Any activities or developments proposed for the area would be evaluated to determine their compatibility with Class II criteria, and mitigation measures would be used to minimize impacts on scenic values. These measures would maintain visual quality under a low-to-moderate level of energy development but intensive exploration or production would seriously degrade the scenic values of the area.

Impacts on Watershed Resources

Under this alternative, there would be short and long term impacts to soils from oil and gas exploration and any other mechanized activities that might occur. In the short term the construction of roads, well sites, and other facilities would cause accelerated soil erosion, compaction, and productivity losses. The extent of long term impacts would depend on the nature and success of reclamation efforts following development and abandonment of facilities. Because complete reclamation success would be unlikely, there could be increased long term losses in both soil productivity and materials.

Soil erosion resulting from development activities would increase water sediment loads during runoff events and accelerate sedimentation of ephemeral channels. If an oil field were developed, it is probable that produced water discharges would occur. This produced water would most likely be more saline than receiving waters. Long term produced water discharges would change channel characteristics by encouraging emergent and subemergent aquatic vegetation, thus increasing channel stability. Increased sediment loads and salinity would not be consistent with efforts to improve water quality in Bighorn Basin drainages.

Impacts on Livestock Grazing

Under this alternative existing grazing practices would continue within the requirements of range management regulations. Increased access that might result from mineral exploration could slightly facilitate livestock management. It is possible, but unlikely, that intensive oil and gas development could conflict with grazing use.

Impacts on Wildlife

Oil and gas exploration in the area could reduce effective wildlife habitat and carrying capacities, and short term disturbance and displacement of wildlife could occur. The significance of these effects would depend on the extent and duration of activity. If energy resource production were to take place or if exploration resulted in increased accessibility to the area, long term impacts would result.

The primary effects on big game (deer and antelope) would come from habitat disruption and disturbance of wintering populations. Activities near water sources during the summer could also be detrimental. No significant game bird losses are expected, although use of reservoir water for energy activity or the occurrence of oil spills could harm waterfowl and game birds in isolated cases. Mitigation measures requiring avoidance of nesting sites should minimize impacts on raptors. Increased activity and increased accessibility for trapping could reduce bobcat, coyote, and fox populations.

Impacts on Mineral Values

This alternative would have no adverse effect on oil and gas leasing, exploration, and development. These activities would proceed subject to standard multiple use management practices and regulations which include measures protecting watershed, wildlife, cultural, and visual resource values. It is not anticipated that development of mineral resources other than oil and gas would take place on the study area lands within the foreseeable future.

Impacts on Paleontological Resources

Destruction of paleontological resources resulting from energy resource activities could occur, but its significance is difficult to predict. Surface disturbance could destroy sites that would not be identified by clearance procedures designed to identify and protect cultural resource locations. With more people using the area and increased ease of access, more unauthorized collecting activity would be expected.

Impacts on Realty and Access

This alternative would have no effect on access or land uses on state or private lands in or adjacent to the study area. It would not restrict any existing or future land use authorizations on federal land except as provided for under standard land use regulations.

ALL WILDERNESS ALTERNATIVE

The analysis of this alternative is based on the assumption that the pre-FLPMA oil and gas leases in the study area will expire before Congress makes a wilderness designation or nondesignation decision. It is also assumed that any exploration of these leases prior to congressional action will not result in discovery of producible energy resources and will not significantly alter the natural character of the area. The rationale underlying these assumptions was explained in the Bobcat Draw Badlands analysis.

Impacts on Wilderness Resources

Wilderness designation of the McCullough Peaks WSA under this alternative would provide long term protection of wilderness values on most of the designated area, but activity or development on lands excluded from designation could have impacts that wilderness management of the area could not prevent.

The most serious threat to wilderness values and management would result from the presence of the state section (Tract 57, T. 54 N., R. 100 W.) inside the area. At present this tract shows virtually no evidence of man's activity and offers excellent wilderness values, but under this alternative it would remain open to development—particularly oil and gas exploration. This alternative actually would encourage its development by closing the surrounding lands to exploration. Drilling on this section could degrade natural character and opportunities for primitive recreation and solitude on as much as a third of the WSA. The state section is located at a point where a number of the drainages contributing to Deer Creek converge. Activity on the section would be highly visible from the surrounding ridges and peaks in the southwestern sector of the WSA. Because of the area's topography, access to this section would follow the Deer Creek drainage and would have to

McCullough Peaks WSA

be constructed to relatively high standards. This route, traversing nearly four miles of the WSA, would be viewed from within the drainage and the flanking ridges.

The situation on the split-estate section (Lot 39, T. 54 N., R. 99 W.) would be similar, but the area affected would be much smaller. This section lies mostly in the Willwood Draw drainage and is flanked on three sides by badland ridges and peaks within the WSA. Any activity on the split-estate section would be quite apparent from this high ground.

The strip of land located along the northern boundary in the west half of the WSA, also would be difficult to manage in a way that would maintain wilderness values. The network of vehicle trails and the relatively flat terrain in the stip would make it very difficult to exclude vehicle use.

The cherry-stem road in the Deer Creek drainage would have a comparatively minor impact on wilderness values. It extends about 1½ miles into the unit, is minimally constructed, and lightly used. It also is visible from a relatively small area. These factors mitigating its impact could be offset by any increase in use that might occur if the surrounding lands were designated as wilderness.

The initial effect of this alternative on the ROS opportunity classes would be to slightly increase the area providing Semi-Primitive Nonmotorized opportunities from the present 16,230 acres to about 16,730 acres. However, developments on the state section and split-estate tract could reduce the acreage capable of producing this opportunity class by as much as several thousand acres, depending on the type, location, and extent of activity.

Impacts on Recreation

Impacts of this alternative on nonwilderness recreation would be minimal. The area's boundary roads and the Deer Creek cherry-stem road would be available to provide recreation access. Wilderness designation of the area would close a few miles of vehicle trail that now receive occasional recreation vehicle use. Some off-road activity (mostly dirt bike) occurring near the northern boundary in the western portion of the area would be excluded. Any vehicle-based use that would be precluded by this alternative could shift to other areas, so there would be no actual loss of opportunities. By protecting scenic, wildlife, wild horse, and paleontological values, this alternative could enhance opportunities for recreation visitors who would use vehicles along the area boundaries.

Impacts on Visual Resources

If this alternative is adopted, the 24,570 acres that would be designated as wilderness would be placed in a visual resource management Class I category. This classification would protect the natural character and scenic quality of the landscape consistent with wilderness management requirements. Visual resource management techniques would be used to mitigate the impacts of oil and gas activity on the state section and its access route, but this activity would still cause highly visible alterations of the natural landscape.

Impacts on Watershed Resources

Restrictions on human activity, particularly oil and gas operations, in the WSA would benefit the watershed resource by eliminating surface disturbance and vegetative cover removal (except that associated with potential development of the state section). Soil erosion caused by such activity would be reduced, and water quality effects of increased sediment derived from disturbed areas and increased salinity from produced water would be avoided. It is not expected that the level of recreation use of the area would be sufficient to produce any watershed impacts. Control of natural sediment loads by means of detention dams and water spreaders would be precluded by wilderness designation, but no such structures are currently planned for the area.

Impacts on Livestock Grazing

Under this alternative, livestock grazing would continue largely unchanged from past use patterns and levels. Forage availability would continue to be the primary limiting factor. Wilderness designation would not cause livestock removal or reduction below existing use levels. Existing facilities could be maintained and new ones could be installed to promote improved livestock management or to enhance resource protection. Predator control activities could be authorized, but control methods would be restricted. Vehicle use on the cherry-stem road and the boundary routes would not be restricted, and motor vehicle access into the designated area could be authorized for emergency livestock management situations. Vehicle use for routine management would be allowed on the designated lands only where necessary to maintain grazing activities established in the area prior to designation.

Impacts on Wildlife

Wilderness designation would largely prevent wildlife displacement and habitat alterations that would occur under the No Wilderness Alternative in response to development activity and vehicle use. Activity on the state section and the access to it could still have these effects within the Deer Creek drainage. Wilderness recreation use would have the potential to disturb wildlife, such as nesting raptors, but such effects could be mitigated by visitor use regulation.

Impacts on Mineral Values

This alternative would preclude mineral exploration and oil and gas development activity on the 24,570 acres which would be designated as wilderness under this alternative. Exploration and development on the state section could occur under the provisions of the state lease. The amount of oil and gas production that would be foregone, if any, under this alternative is unknown and could not be determined without drilling a number of wells in the area. If oil or gas is present beneath the area, some of it might be extracted by means of drainage to wells located outside the designated area or on the state section. This would allow utilization of the oil and gas produced by this means, but it could create legal problems relating to lease rights and royalties.

Impacts on Paleontological Resources

Paleontological resource in the WSA would be protected from the impacts of surface disturbing activities. The increased management presence associated with wilderness designation also would serve to enhance protection from unauthorized collecting.

Impacts on Realty and Access

Land uses on the designated lands would be restricted to those that would be consistent with preservation of wilderness values. Access would have to be provided to allow use of the state section, but restrictions on the route and type of access could be imposed to mitigate the impact on wilderness values. It is not anticipated that wilderness use and management of the designated lands would have any adverse effects on the state or private lands located adjacent to the study area.

CONFLICT REDUCTION ALTERNATIVE

The analysis of this alternative is based on the same assumptions regarding pre-FLPMA oil and gas leases used in the All Wilderness Alternative analysis. It also assumes that any exploration on the lands added to the WSA under this alternative will not result in discovery of producible energy resources and will not significantly alter the natural character of the area prior to congressional action.

The effects of this alternative on visual resources, watershed, wildlife, and paleontological resources would be essentially the same as under the All Wilderness Alternative. Benefits to these values would not apply to the area excluded under this alternative, but the potential for adverse affects resulting from development on the state section or split-estate section would be reduced.

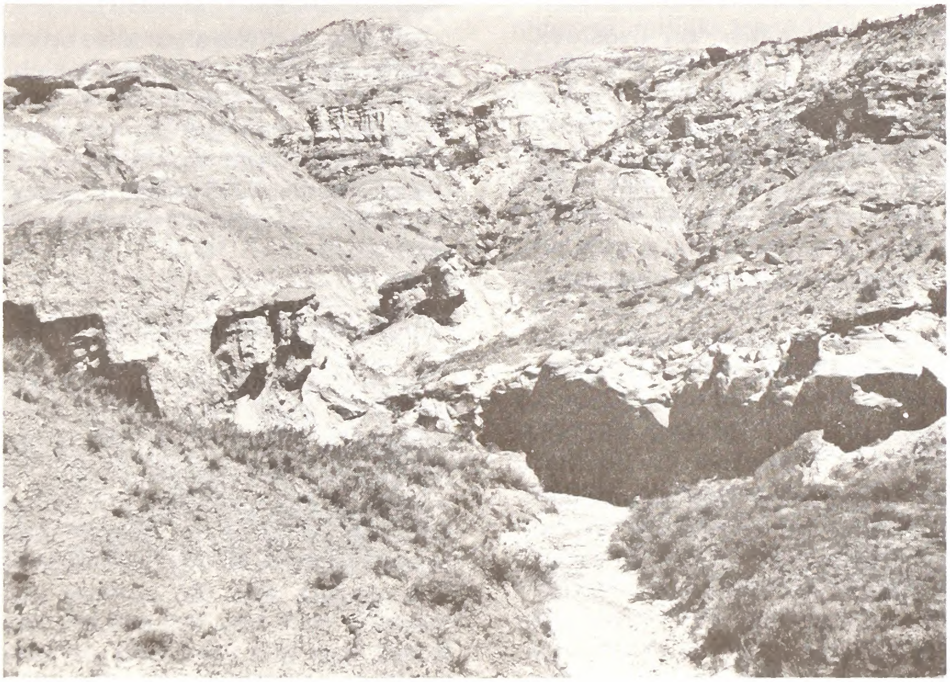
Impacts on Wilderness Resources

This alternative in comparison with the All Wilderness Alternative reduces the area recommended for designation, but it would much more effectively protect wilderness values. The lands included have excellent wilderness values, and they would form a single manageable block with no inholdings.

Inclusion of the state section and split-estate section would substantially enhance the manageability of the area as wilderness. The threat that development on these sections could degrade wilderness character would be essentially eliminated, although valid existing rights to state mineral leases on these sections could pose a potential short term threat.

Restricting vehicle use on the Deer Creek cherry-stem route to specifically authorized uses would eliminate the effects of random casual use. It would also prevent an increase of use that might occur on that route following designation of the surrounding lands.

Excluding the strip of land along the north boundary from designation would not protect natural character of the excluded lands, but their natural character already has been modified substantially. Those lands do not offer outstanding solitude or primitive recreation opportunities and would not do so under a wilderness designation. Because the terrain just south of this strip provides good visual screening, exclusion of the strip



McCullough Peaks WSA

should not degrade wilderness character on adjacent lands included in a designation under this alternative.

The ROS classes that would result from wilderness management under this alternative would be Semi-Primitive Nonmotorized, 18,270 acres; Semi-Primitive Motorized, 4,910 acres; and Roaded Natural, 400 acres. The nonmotorized class is concentrated in the center of the area with the other two classes forming a fringe along the boundary. This pattern and the proportion of the area in the nonmotorized class are indicative of excellent opportunities for solitude and primitive recreation experiences.

Impacts on Recreation

This alternative would close approximately one mile of the Deer Creek cherry-stem road to recreation vehicle access, but it would allow vehicle use on the 2,270 acre strip along the northern boundary. The attractiveness of this strip for many recreation activities is limited, but it does support some ORV use. Inclusion of the state and split-estate sections in a wilderness designation would not affect nonwilderness recreation because at present there is no access available to these sections.

Impacts on Livestock Grazing

The effects of this alternative on livestock grazing would be very similar to those of the All Wilderness Alternative. Exclusion of the 2,270 acre strip along the northern boundary from designation would allow continued vehicle access for routine livestock management on that tract. Inclusion of the state and split-estate sections should have no effect because there is now no access to those sections and no management facilities are located on them. Vehicle access on about one mile of the Deer Creek cherry-stem would be limited to specifically authorized uses.

Impacts on Mineral Values

Mineral leasing, exploration, and production activity would generally be precluded on the 23,580 acres recommended for wilderness designation under this alternative. The only exception to this restriction would be that if Congress did not provide for acquisition of rights created by the state mineral leases on the state and split-estate sections, there would be valid existing rights to explore and develop these leases. If development of the leases did not occur, they would normally expire 10 years after issuance, and new leases would not be issued. On the portion of the WSA excluded from designation, oil and gas leasing, exploration, and development activity could proceed subject to the standard management practices and mitigation measures that apply to all public land.

Impacts on Realty and Access

Under this alternative, the state section and mineral rights to the split-estate section would be acquired from the state of Wyoming. Unless Congress provided other arrangements, state leases on these sections would be recognized as conferring valid existing rights.

WILDERNESS MANAGEABILITY ALTERNATIVE

The analysis of this alternative is based on the same assumptions regarding pre-FLPMA oil and gas leases used in the All Wilderness Alternative analysis. It also assumes that any exploration on the lands added to the WSA under this alternative will not result in discovery of producible energy resources and will not significantly alter the natural character of the area prior to congressional action.

The effects of this alternative on visual resources, watershed, mineral values, paleontological resources, and realty and access would be essentially the same as under the Conflict Reduction Alternative. These effects would simply be extended to the additional 6,010 acres of land which would be included in a wilderness designation under this alternative.

Impacts on Wilderness Resources

This alternative would protect wilderness values on 6,010 acres that would not receive such protection under the All Wilderness or Conflict Reduction Alternatives. During the wilderness inventory this tract was not included in a WSA because of ongoing mineral exploration and recent livestock facility maintenance. This activity has ceased, and the surface disturbance has blended back into the natural landscape to the extent that this tract now exhibits "wilderness quality" natural character. This alternative would allow that character to be maintained.

Potential addition to McCullough Peaks Area

The badland drainages in this area are especially steep, and they cut very impressive canyons. They would provide an excellent primitive recreation experience for anyone willing to explore them on foot. Including this area in a designation would serve to enhance wilderness recreation and management opportunities on the entire designated area. Inclusion of these additional lands would make it possible to develop a loop trail system with entry to the area crossing the Shoshone River near Corbett Dam. Properly located, such a trail system could help to distribute use, routing visitors to areas other than the major drainage bottoms. It would enhance the visitor's perception of remoteness and the opportunities to enjoy some of the more spectacular badland features. The ROS classes that wilderness management of the lands included in this alternative would provide would be Semi-Primitive Nonmotorized, 22,650 acres; Semi-Primitive Motorized, 6,540 acres; and Roaded Natural, 400 acres.

Impacts on Recreation

This alternative would close approximately four miles of vehicle trails that presently receive at least some recreation vehicle use. Most of this use is related to sightseeing or hunting activities. This activity could shift to other locations in the region, but few locations would offer the same quality opportunities to view spectacular badland scenery as are available on these lands.

Impacts on Livestock Grazing

The 6,010 acres included under this alternative that is not part of the Conflict Reduction Alternative proposal provides approximately 236 AUMs of livestock grazing. The only effect on this use would be the restriction of vehicle access to that required to maintain established grazing use. Access for emergency purposes and to maintain facilities would still be authorized. The steepness of the terrain is the primary factor limiting vehicle use in this area.

SOCIAL AND ECONOMIC SUMMARY ANALYSIS

The social and economic effects of designating or not designating any or all of the study areas as wilderness would reflect changes in human use of the resource base that would or would not occur under the various alternatives.

NO WILDERNESS ALTERNATIVE

The analysis of resource impacts for each of the study areas indicates that under this alternative most existing uses, such as livestock grazing or nonwilderness recreation, would continue as they have in the past. The exception in each case is expected to be oil and gas exploration activity which could result in the production of oil and/or gas resources and would degrade natural character to the extent that wilderness values in these areas could be lost.

Loss of wilderness values would have a variety of social consequences. The opportunity to use these areas for primitive, unconfined recreation and solitude experiences would be foregone. This loss would be mitigated by the presence of several million acres of designated or administratively endorsed wilderness within a few hours driving time of these areas and the populations that would make the most use of them. The presence of so much designated or endorsed wilderness in the region, indicates a good supply of primitive recreation and solitude opportunities. It should be noted, however, that virtually all of these opportunities are in alpine areas which provide a setting, season of use, and type of experience different from that provided by the four study areas.

One of the social goals associated with the National Wilderness Preservation System is to preserve examples of the basic ecosystems and landforms of the United States in an unimpaired condition for future generations. Loss of wilderness values in these study areas would be inconsistent with this goal in that there are no units in, or recommended for inclusion in, the wilderness system that fall within the same ecoregion and potential vegetation classes as these study areas. However, essentially similar ecosystems may be under wilderness protection or study in adjacent ecoregions, or they are included in National Park System units, such as Badlands National Park in western South Dakota.

WILDERNESS ALTERNATIVES

During the planning phase of the wilderness study and the scoping analysis for this EIS, it became apparent that any social and economic impacts caused by wilderness designation of any of the study areas would be associated with effects on recreation, livestock grazing, or oil and gas production activity.

In varying degrees all the designation alternatives would protect opportunities for primitive recreation while restricting vehicle-based recreation uses. The social effect of vehicle use restrictions is not expected to be significant. Much of this activity would continue using area boundary roads for access. Any use that was displaced could simply shift to other areas having very similar natural attributes but greater access availability. There should be no net loss of recreation opportunities or of recreation related expenditures in the local economy.

The existing opportunities for primitive and unconfined recreation would be protected, and because of the "name identification" that wilderness designation provides, an increase in use of these opportunities probably would occur. However, given the wealth of wilderness opportunities available within a day's drive, it is highly unlikely that any great number of nonlocal visitors would be drawn to the region. Most of the visitors who would benefit from designation of these areas would be Bighorn Basin residents. As a result there would be no significant change in tourism industry income in the basin.

Consideration of the effects of wilderness management on livestock grazing suggest that while wilderness designation might be inconvenient for some livestock operators, it is highly unlikely that any significant economic impacts would result. The Congress has made it clear that grazing activities established in an area at the time it is designated as wilderness will be allowed to continue. Where the use of motorized equipment or vehicles is required to support that activity, it would be authorized. Congressional guidance on this point reads as follows:

> The maintenance of supporting facilities, existing in an area prior to its classification as wilderness (including fences, line cabins, water wells and lines, stock tanks, etc.), is permissible in wilderness.
>
> Where practical alternatives do not exist, maintenance or other activities may be accomplished through the occasional use of motorized equipment. This may

> include, for example, the use of backhoes to maintain stock ponds, pickup trucks for major fence repairs, or specialized equipment to repair stock watering facilities. Such occasional use of motorized equipment should be expressly authorized in the grazing permits for the area involved. The use of motorized equipment should be based on a rule of practical necessity and reasonableness.

In the study areas considered by this EIS, this guidance would result in livestock management operations continuing essentially as they have in the past. Some vehicle use for activities such as checking or moving stock might be restricted, and an effort would be made to locate sheep camps outside the designated area, if relocation would not conflict with continuation of existing use. These restrictions and the requirement to obtain authorization for vehicle use might be an inconvenience for some livestock operators, but the protection of existing use, combined with the rule of practical necessity and reasonableness, virtually guarantees no significant economic impacts on existing livestock grazing. The lack of forage availability, not wilderness restrictions, would preclude any significant expansion of grazing use.

Wilderness designations would preclude oil and gas exploration and might cause some oil or gas resources not to be produced, yet it appears unlikely that the effects on the economy or social institutions of the Bighorn Basin would be significant.

Oil and gas exploration activity provides a source of employment and income for region residents. On the designated lands the potential for generating employment and income from this activity would be foregone. However, the most likely effect of restrictions on drilling activity on these areas would be a displacement of activity to other sites in the region, not a net decrease in activity. This is exactly what has happened on the WSAs under interim management. A wilderness designation withdrawal could in some cases simply displace drilling activity to the best available location outside the withdrawn acreage for testing the same potential resource. In other cases displacement would be to other locations in the Bighorn Basin. Ultimately it would be reasonable to assume that the net effect of any withdrawals on drilling income and employment would be roughly equal to the proportion of the land area withdrawn in the basin (a maximum of 1.1 percent if all the Wilderness Manageability Alternatives were adopted). This effect would be distributed over the years that exploration activity would occur under the No Wilderness Alternative.

If wilderness designation resulted in foregone production of oil and gas resources there would be effects on employment, income, and tax and royalty receipts. Although the potential of the study areas for energy resources is believed to be high, it is possible that there are no producible resources present and that there would in fact be no economic benefits foregone. The geology of the study areas also suggests that there are practical limits on the maximum potential for oil and gas. A "typical small field" is the most reasonable assumption of the production that could occur from these areas. The difference that such a field would make in the oil and gas industry of the Bighorn Basin is small. In 1980, there were 97 fields producing oil and 45 producing gas in the basin. However, 10 oil fields accounted for 85 percent of the oil produced, while only five gas fields produced 80 percent of the gas. Each of the remaining small fields thus accounted for less than 0.2 percent of the oil and 0.5 percent of the gas. These figures indicate that the type or amount of production that might be reasonably expected to occur in the study areas would be highly unlikely to significantly change the effect of the total oil and gas industry on the region's economy.

In conclusion, there appears to be no substantial grounds for believing that either designation or nondesignation of the study areas covered by this EIS would have significant social or economic impacts. This conclusion is consistent with the limited interest that has been displayed by region residents in response to the wilderness study public involvement efforts.

TABLE IV-1

ADVERSE IMPACTS, SHORT TERM VS. LONG TERM USE, IRREVERSIBLE/IRRETRIEVABLE RESOURCE COMMITMENT

WSA/Alternative	Adverse Impacts	Short Term vs. Long Term Productivity	Irreversible/Irretrievable Commitment of Resources
Bobcat Draw Badlands			
No Wilderness	Wilderness character lost on 22,440 acres. Watershed, wildlife, scenic and fossil resources potentially degraded.	Wilderness character and opportunities lost long term. Possible short term oil and gas resource production.	Wilderness values lost and any oil or gas produced.
All Wilderness	No oil and gas exploration on 17,150 acres—possible foregone production. Manageability problem near state sections.	Wilderness recreation and solitude opportunities provided long term oil and gas production possibly foregone.	Some potential wilderness value loss near state sections.
Conflict Reduction	No oil and gas exploration on 18,540 acres—possible foregone production.	Wilderness recreation and solitude opportunities provided long term. Short term oil and gas production possibly foregone.	None
Wilderness Manageability	No oil and gas exploration on 22,440 acres—possible foregone production.	Same as Conflict Reduction alternative expanded to 22,440 acres.	None

TABLE IV-1 (Continued)

ADVERSE IMPACTS, SHORT TERM VS. LONG TERM USE, IRREVERSIBLE/IRRETRIEVABLE RESOURCE COMMITMENT

WSA/Alternative	Adverse Impacts	Short Term vs. Long Term Productivity	Irreversible/Irretrievable Commitment of Resources
Sheep Mountain			
No Wilderness	Wilderness character lost on 22,850 acres. Watershed, wildlife, scenic, and fossil resources potentially degraded.	Wilderness character and opportunities lost long term. Possible short term oil and gas production.	Lost wilderness values and any produced oil and gas.
All Wilderness	No oil and gas exploration on on 22,210 acres—possible foregone production. Wilderness character possibly degraded on 1/3 of area. Manageability problems.	Wilderness recreation and solitude opportunities provided long term on at least 2/3 of area. Short term oil and gas production possibly foregone.	Some potential wilderness value loss.
Conflict Reduction	Wilderness character lost on 8,260 acres. Other natural values potentially degraded on the same area. No oil and gas exploration on 14,540 acres—possible foregone production.	Wilderness recreation and solitude opportunities provided long term on 14,540 acres. Possible short term oil and gas production on 8,260 acres, with potential possibly foregone on remainder of area.	Some wilderness values lost and any produced oil and gas.
Wilderness Manageability	No oil and gas exploration on 23,800 acres—possible foregone production.	Wilderness recreation and solitude opportunities provided long term on entire area. Short term oil and gas production possibly foregone.	None

TABLE IV-1 (Continued)

ADVERSE IMPACTS, SHORT TERM VS. LONG TERM USE, IRREVERSIBLE/IRRETRIEVABLE RESOURCE COMMITMENT

WSA/Alternative	Adverse Impacts	Short Term vs. Long Term Productivity	Irreversible/Irretrievable Commitment of Resources
Red Butte			
No Wilderness	Wilderness character lost on 10,910 acres. Watershed, wildlife, scenic, and fossil resources potentially degraded.	Wilderness character and opportunities lost long term. Oil and gas production might occur short term.	Lost wilderness values and any produced oil and gas.
All Wilderness	No oil and gas exploration on 10,910 acres—possible foregone production. Manageability problem on 600 acres.	Wilderness recreation and solitude opportunities provided long term. Potential short term oil and gas production possibly foregone.	None
Wilderness Manageability	No oil and gas exploration on 10,250 acres—possible foregone production.	Same as All Wilderness Alternative.	None

TABLE IV-1 (Continued)

ADVERSE IMPACTS, SHORT TERM VS. LONG TERM USE, IRREVERSIBLE/IRRETRIEVABLE RESOURCE COMMITMENT

WSA/Alternative	Adverse Impacts	Short Term vs. Long Term Productivity	Irreversible/Irretrievable Commitment of Resources
McCullough Peaks			
No Wilderness	Wilderness character lost on 29,590 acres. Watershed, wildlife, scenic, and fossil values potentially degraded.	Wilderness character and opportunities lost long term. Possible short term energy resources production.	Wilderness values lost and any oil and gas produced.
All Wilderness	No energy exploration on 24,570 acres. Possible oil and gas production foregone. Wilderness character possibly degraded on 1/3 of area. Manageability problems.	Opportunities for wilderness recreation and solitude provided long term on most of area. Possible foregone short term oil and gas production.	Some wilderness value loss.
Conflict Reduction	No oil and gas exploration on 23,580 acres—possible foregone production.	Wilderness opportunities provided long term on designated area. Short term oil and gas production possibly foregone.	None
Wilderness Manageability	No oil and gas exploration on 29,590 acres—possible foregone production. Some displacement of motorized recreation use.	Same as Conflict Reduction expanded to 29,590 acres.	None

CHAPTER V

CONSULTATION AND COORDINATION

DEVELOPMENT OF THE PROPOSAL

Consultation and coordination in the development of the proposed actions and alternatives addressed in this EIS has been an ongoing process throughout the inventory and planning phases of the wilderness review.

The inventory phase provided two official public comment periods during which the public was asked to provide information on the suitability of areas for identification as wilderness study areas. The first of these comment periods, during the spring of 1979, dealt with proposed initial inventory decisions and was widely publicized in state and local news media. In the Worland District briefings were given for the planning commissions and county commissioners of the four counties in the district, open houses were held in Worland, Greybull, and Cody, and a formal public meeting was held in Worland. District staff also made presentations to a number of local civic organizations. In April of 1980, proposed intensive inventory decisions were published and a second comment period was initiated. Again there were open houses, public meetings, briefings for local government commissions, presentations to interested groups, and extensive news media coverage. Comments were accepted through August 19, 1980, and were used in making final WSA determinations.

The planning phase of the wilderness review was handled separately for the Grass Creek and Cody areas. In the Grass Creek Resource Area it was accomplished as part of a major management framework plan revision. This planning effort included the full range of public involvement opportunities that are required under the bureau planning system. These standard procedures were supplemented for wilderness issues by letters requesting comments mailed to local and state government, other federal agencies, mineral interests, livestock operators, regional and national conservation organizations, and other individuals or groups interested in wilderness in the Worland District. The responses received were utilized in developing the EIS alternatives for the study areas in the Grass Creek Resource Area.

In the Cody Resource Area a planning update was accomplished examining only the issue of potential wilderness designation of the McCullough Peaks WSA. In the course of this update, individual BLM staff members made a number of contacts with interested individuals or groups, and an open house public meeting was held in the Cody Area Office on November 17, 1984. Letters requesting comments were also sent to the same types of interested organizations and individuals as received the Grass Creek letter. The responses obtained were considered in selecting the EIS alternatives for the McCullough Peaks area.

DEVELOPMENT OF THE EIS

The inventory and planning actions described in the preceding paragraphs served as an exhaustive scoping process for this EIS. The inventory narrowed down the lands to be considered for designation by identifying WSAs. The planning efforts identified viable alternatives for consideration and selected preliminary proposed actions. The notices of intent published in the *Federal Register* for these planning actions also provided the required formal public notice of intent to prepare this EIS.

Upon completion of the Cody planning update, the Worland District staff evaluated the information available to determine whether any additional effort was required to clearly define the issues to be addressed by the EIS. It was concluded that adequate public input relating to environmental issues had already been obtained. This input, combined with the involvement of BLM staff specialists from several disciplines and limited consultation with other individuals and organizations, was fully adequate to define the major issues and alternatives. A statement of these issues is provided in Chapter I.

The writing of this EIS document began in January 1984. It was prepared by personnel assigned to the Worland District staff and the Cody and Grass Creek Resource Areas. A list of these staff members, their participation in this EIS, and their areas of expertise is provided by Table V-1. Public review of this draft will be obtained during the fall of 1984. Comments received from the public during that review will be used to develop a final EIS which will form the basis for final BLM recommendations on wilderness designation of the four study areas.

TABLE V-1

LIST OF PREPARERS

Name	EIS Assignment	Education	Years of Experience
Worland District Office			
Robert Barry	Project Manager/ Wilderness Resources	MS-Forest Recreation Graduate Studies-Resource Policy and Planning	12
Mark Goldbach	Core Team/Recreation Resources	BS-Recreation Resources Management	4
John Thompson	Socio-Economics	BS-Political Science BS-Economics MS-Agricultural Economics	7
John Moorhouse	Project Planning	BS-Forest Management	18
Ken Stinson	Vegetation/Livestock Grazing	BS & MS Range Management	16
Gary McFadden	Wild Horses	BS-Range Management	8
Don Messer	Vegetation/Livestock Grazing	BS-Animal Science MS-Range Management	25
Jeff Denton	Wildlife Resources	BS & MS Wildlife Management	13
Steven Coy	Wildlife Resources	BS-Resource Management MS-Wildlife Management	10
John Simms	Geology/Mineral	BS-Chemistry MS-Geology	10
Robert Ross Jr.	Geology/Mineral Resources	BS-Geology	5
William Wilson	Hydrology	BS-Watershed Science	4
Paul Meyer	Soils	BS-Biology MS-Botany	6
Gary Rosenlieb	Hydrology	BS-Microbiology MS-Water Resources	7
Leonard Larsen	Lands/Realty	BS-Range Management	17
John Jorenby	Lands/Realty	On-The-Job-Training	25
Virginia Horton	Word Processing	BS-Education	15
Diane Losey	Word Processing	On-The-Job Training	5
Margy Tidemann	Word Processing	On-The-Job Training	20
Cindy Schelin	Support Services	Business College	12
Document Review:			
Edward Fisk	Associate District Manager		
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PUBLIC INPUT RECEIVED

The following organizations and at least 100 individuals have provided comments during the preparation of this EIS or during the inventory and planning phases that preceded it. The comments from these sources were used in developing the analysis contained in this document.

Federal Agencies

- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- Geological Survey
- National Park Service

State Agencies

- Wyoming Agriculture Department
- Wyoming Conservation Commission
- Wyoming Department of Environmental Quality
- Wyoming Executive Department
- Wyoming Game and Fish Department
- Wyoming Geological Survey
- Wyoming Oil and Gas Commission
- Wyoming Recreation Commission
- Wyoming Water Development Commission

Local Government

- Big Horn County
- Hot Springs County
- Park County
- Washakie County

Business and Industry

- ANR Production Company
- Amoco Production Company
- Atlantic Richfield Company
- American Natural Gas Production
- American Quasar Petroleum Company
- Arkla Exploration Company
- Beard Oil Company
- Burk, Bakwin, and Henery
- Chevron USA Inc.
- Champlin Petroleum Company
- Cody Gas Company
- Exxon Company
- Far West Exploration
- Gulf Oil Exploration and Production Company
- Husky Oil Company
- L. U. Sheep Company
- Michigan Wisconsin Pipeline Company
- Minerals Exploration Coalition
- Petroleum Association of Wyoming
- Petroleum Information Corporation
- Phelps Dodge Corporation
- Sabine Production
- Sage Creek Cattle Association
- Santa Fe Industries Inc.
- Tenneco Oil Exploration and Production Company
- True Oil Company
- Tetra Tech. Inc.
- Texas Gas and Exploration Corporation
- Union Oil and Gas

Organizations

- American Wilderness Alliance
- Bowhunters of Wyoming
- Delta Four Wheelers
- Friends of the Earth Inc.
- Park County 4-H Council
- Powder River Basin Resource Council
- Shoshone Rock Club
- Sierra Club
- South Bighorn Conservation District
- Wilderness Society
- Willwood Irrigation District
- Wyoming Farm Bureau
- Wyoming Gem and Mineral Society
- Wyoming Heritage Society
- Wyoming Historical Society
- Wyoming Stock Growers Association
- Wyoming Wilderness Association
- Wyoming Wildlife Federation
- Wyoming Wool Growers Association

REVIEW OF THE EIS

The Worland District maintains a mailing list made up of individuals, groups, and organizations that have expressed an interest in district wilderness issues. A copy of this EIS will be sent to those on the list with a request for their comments. The mailing list includes the following:

- Wyoming congressional delegation
- Federal agencies
- State government
- County and local government
- Minerals industry
- Livestock operators
- Other businesses
- Conservation organizations
- Other groups and organizations
- Interested individuals

APPENDIX A

DEFINITION OF WILDERNESS CHARACTERISTICS

Section 603(a) of the Federal Land Policy and Management Act directs the BLM to use the criteria given by the Wilderness Act of 1964, in identifying areas having wilderness values. Section 2(c) of the Wilderness Act states the relevant criteria as follows:

> "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

These characteristics are explained in detail in the "Wilderness Inventory Handbook - Policy, Direction, and Procedures and Guidance for Conducting Wilderness Inventory on the Public Lands; September 1978."

APPENDIX B

WILDERNESS STUDY CRITERIA AND STANDARDS

The BLM Wilderness Study Policy specifies factors that are to be considered in developing suitability recommendations in the study phase of the wilderness review process. This guidance is summarized below:

> The primary goal of the BLM wilderness study process is to determine an area's suitability or nonsuitability for preservation as wilderness. The BLM will recommend for wilderness designation only those areas for which it has been determined, through the Bureau's multiple resource planning process and public involvement, that wilderness is the most appropriate use of the land and its resources. In addition, areas recommended as suitable for wilderness designation should possess wilderness values and multiple resource benefits capable of balancing the benefits of other resource values and uses which would be foregone due to wilderness designation.

In order to systematically evaluate these broad questions all BLM wilderness recommendations, both suitable and nonsuitable for preservation as wilderness, will be justified on the basis of the two planning criteria and six quality standards listed below.

Criterion Number 1, Evaluation of Wilderness Values

Consider the extent to which each of the following contributes to the overall value of an area for wilderness purposes.

1. Mandatory wilderness characteristics: size, naturalness and outstanding opportunities for solitude or primitive, unconfined recreation.
2. Special features: the presence or absence and quality of ecological, geological or other features of scientific, educational, scenic, or historical value.
3. Multiple-resource benefits: the benefits to other multiple-resource values and uses that only wilderness designation of the area could ensure.
4. The extent to which wilderness designation of the area under study would contribute to expanding the diversity of the NWPS from the standpoint of the factors listed below:

   a. Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

   b. Assessing the opportunities for solitude or primitive recreation within a day's driving time of major population centers.

   c. Balancing the geographic distribution of wilderness areas.

Criterion Number 2, Manageability

The area must be capable of being effectively managed to preserve its wilderness character.

Standard Number 1, Energy and Mineral Resource Values

Recommendations as to an area's suitability or unsuitability for wilderness designation will reflect a thorough consideration of any identified or potential energy and mineral resource values.

Standard Number 2, Impacts on Other Resources

Consider the extent to which other resource values or uses of the area would be forgone or adversely affected as a result of wilderness designation.

Standard Number 3, Impact of Nondesignation on Wilderness Values

Consider the alternative use of land under study if the area is not designated as wilderness, and the extent to which the wilderness values of the area would be forgone or adversely affected as a result of this use.

Standard Number 4, Public Comment

In determining whether an area is suitable or unsuitable for wilderness designation, the BLM wilderness study process will consider comments received from interested and affected public groups at all levels—local, state, regional, and national. Wilderness recommendations will not be based exclusively on a vote-counting majority rule system. BLM will develop its recommendations by considering public comment in conjunction with its analysis of a wilderness study area's multiple resource and social and economic values and uses.

Standard Number 5, Local Social and Economic Effects

In determining whether an area is suitable or unsuitable for wilderness designation, BLM will give special attention to adverse or favorable social and economic effects, as identified through the wilderness study process, that wilderness designation will have on local areas.

Standard Number 6, Consistency With Other Plans

In determining whether an area is suitable or unsuitable for wilderness designation, BLM will consider the extent to which the recommendation is consistent with officially approved and adopted resource-related plans of other federal agencies, state and local governments, and Indian tribes (and the policies and programs contained in such plans), as required by FLPMA and BLM Planning regulations.

APPENDIX C

DESCRIPTION OF ROS CLASSES

Each of the six ROS (Recreation Opportunity Spectrum) classes is described in terms of: (1) experience opportunities; (2) setting opportunities, and (3) activity opportunities. These descriptors provide a general overview of the opportunities included in each class. These overview statements do not describe each class in detail, but rather provide a point of departure from which the planner or manager can develop more precise prescriptions for each class based on specific situations encountered in field operations. The listing of activity opportunities is provided for illustrative purposes. It is not an all-inclusive list of activity opportunities on the public lands.

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS

Opportunity Class	Experience Opportunity	Setting Opportunity	Activity Opportunity
Primitive	Opportunity for isolation from the sights and sounds of man, to feel a part of the natural environment, to have a high degree of challenge and risk, and to use outdoor skills.	Area is characterized by essentially unmodified natural environment of fairly large size. Concentration of users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of man-induced restrictions and controls. Only facilities essential for resource protection are used. No facilities for comfort or convenience of the user are provided. Spacing of groups is informal and dispersed to minimize contacts between groups. Motorized use within the area is not permitted.	Camping, hiking, climbing, enjoying scenery or natural features, nature study, photography, spelunking, hunting (big game, small game, upland birds, waterfowl), ski touring and snowshoeing, swimming, diving (skin and scuba), fishing, canoeing, sailing, and river running (nonmotorized craft).
Semi-Primitive Nonmotorized.	Some opportunity for isolation from the sights and sounds of man, but not as important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills.	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and the safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is not permitted.	Camping, hiking, climbing, enjoying scenery or natural features, nature study, photography, spelunking, hunting (big game, small game, upland birds, waterfowl), ski touring and snowshoeing, swimming, diving (skin and scuba), fishing, canoeing, sailing, and river running (nonmotorized craft).
Semi-Primitive Motorized.	Some opportunity for isolation from the sights and sounds of man, but not as important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Explicit opportunity to use motorized equipment while in the area.	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is permitted.	Same as the above, plus the following: ORV Use (4-WD, Dune Buggy, Dirt Bike, Snowmobile), Power Boating.

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS—*Continued*

Opportunity Class	Experience Opportunity	Setting Opportunity	Activity Opportunity
Roaded Natural	About equal opportunities for affiliation with other user groups and for isolation from sights and sounds of man. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. Practice of outdoor skills may be important. Opportunities for both motorized and nonmotorized recreation are present.	Area is characterized by a generally natural environment with moderate evidence of the sights and sounds of man. Resource modification and utilization practices are evident, but harmonize with the natural environment. Concentration of users is low to moderate with facilities sometimes provided for group activity. On-site controls and restrictions offer a sense of security. Rustic facilities are provided for user convenience as well as for safety and resource protection. Conventional motorized use is provided for in construction standards and design of facilities.	All activities listed previously, plus the following: picnicking, rock collecting, wood gathering, auto touring, downhill skiing, snowplay, ice skating, water skiing and other water sports, hang gliding, interpretive use, rustic resorts and organized camps.
Rural	Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. These factors are generally more important than the natural setting. Opportunities for wildland challenges, risk taking, and testing of outdoor skills are unimportant, except in those activities involving challenge and risk.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are obvious. Sights and sounds of man are readily evident, and the concentration of users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for specific activities. Developed sites, roads and trails, are designed for moderate to high use. Moderate densities are provided far away from developed sites. Facilities for intensive motorized use are available.	All activities listed previously, plus the following: competitive games, spectator sports, bicycling, jogging, outdoor concerts, and modern resorts.
Modern Urban	Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. Experiencing the natural environment, and the use of outdoor skills are largely unimportant.	Area is characterized by a highly modified environment, although the background may have natural elements. Vegetation is often exotic and manicured. Soil may be protected by surfacing. Sights and sounds of man, on-site, predominate. Large numbers of users can be expected. Modern facilities are provided for the use and convenience of large numbers of people. Controls and restrictions are obvious and numerous. Facilities for high intensity motor use and parking are present with forms of mass transit often available.	All activities listed previously.

GLOSSARY

ALLOCATION (livestock grazing) - The total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee.

ALLOTMENT MANAGEMENT PLAN (AMP) - A written program of livestock grazing management designed to attain specific management goals in a grazing allotment.

ANIMAL UNIT MONTH (AUM) - The forage needed to support one cow, one horse, or five sheep for a month.

ARCTOCYONID - Primitive omnivourous and carnivourous mammals belonging to a group ancestral to the modern hoofed mammals.

BAILY-KUCHLER SYSTEM - A classification system that divides the United States into ecosystems based on climate, vegetation, soils, and landform.

BUNOPHORUS - Very primitive even-toed mammals related to the ancestors of pigs and cattle. Smaller than a pig.

CHERRY-STEMMED ROAD - A road that enters but doesn't pass completely through a wilderness study area.

CULTURAL RESOURCES - Evidence of historic or prehistoric human occupation or activity reflected in sites, structures, artifacts, ruins, tools, art objects, etc.

DRAINAGE (oil and gas) - A well producing hydrocarbons from adjoining lands not under the lease on which the well is located.

ECOSYSTEM - A system formed by the interaction of a community of organisms with their environment.

ENDANGERED SPECIES - Any species which is in danger of extinction throughout all or a significant portion of its ranges.

ENVIRONMENTAL IMPACT STATEMENT (EIS) - A written analysis of the impacts on the environment of a proposed project or action.

EOCENE - Subdivision of the Tertiary period. Began about 53.5 million years ago and ended about 37.5 million years ago.

EPHEMERAL DRAINAGE - A stream that flows only in direct response to precipitation, and whose channel is at all times above the water table.

FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA) - Public Law 94-579, October 21, 1976, A Law which provides most of BLM's legislated authority, direction, policy and basic guidance.

FECAL COLIFORM - Bacteria that are present in the intestine and feces of warm-blooded animals. Their presence in water indicates fecal contamination.

GEOPHYSICAL EXPLORATION - Broad term applied to a number of physical techniques used to search for mineralization or structures associated with accumulations of oil and gas. Includes magnetic, gravity, electrical, and seismic exploration methods.

HABITAT - A specific set of physical conditions that surround a species, group of species or a large community. In wildlife management, the major constituents of habitat are considered to be food, water, cover and living space.

HERD MANAGEMENT PLAN - An activity plan which addresses the management of wild horses or burros and their habitat on a herd management area.

HEPTODON - Odd-toed, hoofed mammals which may have been ancestral to tapirs. About the size of a pig.

INHOLDINGS - State or privately-owned lands inside a wilderness study area.

INTERIM MANAGEMENT (Wilderness) - Bureau policy mandated by FLPMA providing protection of wilderness character on lands being studied for possible wilderness designation.

INTERMITTENT STREAM - A stream that carries water most of the time, or over most of its course, but ceases to flow occasionally.

INTRUSION - A feature which is out of context with the characteristic landscape.

KGS (Known Geologic Structure) - A trap in which an accumulation of oil or gas has been discovered and determined to be productive, the limits of which include all acreage that is presumptively productive.

LICENSED USE - see permitted use.

MANAGEMENT FRAMEWORK PLAN (MFP) - Land use plan for public lands which provides a set of goals, objectives, and constraints for a specific planning area to guide the development of detailed plans for the management of each resource. It is the BLM's land use plan.

MESOZOIC - One of the major eras of geologic time. Began about 225 million years ago and ended about 65 million years ago.

NATURAL CHARACTER - Refers to an area which generally appears to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable.

OFF-ROAD VEHICLE (ORV) - Any motorized track or wheeled vehicle designed for cross-country travel over natural terrain.

PALEOCENE - Subdivision of the Tertiary period. Began about 65 million years ago and ended about 53.5 million years ago.

PALEONTOLOGICAL RESOURCES - Significant fossils of animals and plants that occur on public lands.

PALEOZOIC - One of the major eras of geologic time. Began about 570 million years ago and ended about 225 million years ago.

PERENNIAL STREAM - A stream or reach of a stream that flows continuously throughout the year. Also known as permanent or live stream.

PERMITTED USE (GRAZING) - An authorization that permits the grazing of a specified number of livestock on a designated area of BLM lands for a period of time.

PLEISTOCENE - One of the two subdivision of the Quaternary period. Began about 2 to 3 million years ago and ended about 10,000 years ago.

POST-FLPMA LEASE - Mineral lease issued after passage of the Federal Land Policy and Management Act on October 21, 1976. These leases contain a wilderness protection stipulation that prohibits any activity on the lease that would impair wilderness suitability.

PREDATOR CONTROL - To shoot, trap, poison or otherwise remove coyotes or other predators from their range in order to minimize conflicts with livestock.

GLOSSARY

PRE-FLPMA LEASE - Mineral lease issued before passage of the Federal Land Policy and Management Act on October 21, 1976. These leases contain no wilderness protection stipulation, and may be developed even if doing so would impair wilderness suitability.

PRIMITIVE AND UNCONFINED RECREATION - Nonmotorized and nondeveloped types of outdoor recreational activities.

PRODUCED WATER - Water produced along with oil that must be separated out of the oil before the oil is marketable.

PUBLIC LANDS - Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the interior through the Bureau of Land Management.

RAPTORS - Bird of prey such as hawks, owls and eagles.

REALTY - Public land, property or real estate administered by the Bureau of Land Management.

RECREATION OPPORTUNITY SPECTRUM (ROS) - A classification system developed for use in rating recreation experience opportunities (See Appendix C).

RIPARIAN - Situated on or pertaining to the bank of a river, stream, or other body of water.

SEDIMENT - Mineral or organic matter that settles to the bottom of or is deposited by water.

SEISMIC EXPLORATION - A type of geophysical exploration technique utilizing earth vibrations (usually produced by explosions, mechanical vibrations, etc.) to search for subsurface structures or conditions conducive to oil and gas accumulation.

SOIL ASSOCIATION - Map units delineating areas containing a particular combination of two or more soils.

SPLIT-ESTATE-LANDS - Lands where the surface is federally owned but the subsurface mineral estate (mineral resources) is nonfederally owned.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA) - A county containing at least one city with 50,000 inhabitants plus any adjacent urban territory.

TERTIARY - The earlier of the two geologic periods comprising the Cenozoic Era. Began about 65 million years ago and ended about 2 to 3 million years ago.

THREATENED SPECIES - Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

VISUAL RESOURCE - The land, water, vegetation, animal, and other features that comprise the scenery of an area.

VISUAL RESOURCE MANAGEMENT (VRM) CLASS - A determination of the degree of management protection that will be given to the visual resources on an area of land. Class I denotes a very high degree of protection; Class IV denotes an area where major modifications of the landscape will be allowed.

WATERSHED RESOURCE - The soil, water, and vegetation regime existing on an area of land.

WILDERNESS AREA - An area formally designated by Congress as part of the National Wilderness Preservation System.

WILDERNESS STUDY AREA (WSA) - An area determined to have wilderness characteristics. Study areas are subject to interdisciplinary analysis and public comment to determine wilderness suitability. Suitability areas are recommended to the President and Congress for wilderness designation.

WITHDRAWAL - An action that restricts the use of public lands and segregates the lands from some or all of the public land or mineral laws.

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